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- <110> Ashkenazi, Avi J.
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 Desnoyers, Luc
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 Ferrara, Napoleone
 Fong, Sherman
 Gerber, Hanspeter
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 Goddard, Audrey
 Godowski, Paul J.
 Grimaldi, J. Christopher
 Gurney, Austin L.
 Kljavin, Ivar J.
 Napier, Mary A.
 Pan, James
 Paoni, Nicholas F.
 Roy, Margaret Ann
 Stewart, Timothy A.
 Tumas, Daniel
 Watanabe, Colin K.
 Williams, P. Mickey
 Wood, William I.
 Zhang, Zemin
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Ile | Ile | Gln | Glu | Arg | Asn | Gly | Val | Leu | Pro | Asp | Cys | Leu | Thr | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Asp | Gly | Ser | Asp | Val | Val | Ser | Asp | Leu | Glu | His | Glu | Glu | Met | Lys | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Ile | Leu | Arg | Glu | Val | Leu | Arg | Lys | Ser | Lys | Glu | Glu | Tyr | Asp | Gln | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Glu | Glu | Glu | Arg | Lys | Arg | Lys | Lys | Gln | Leu | Ser | Glu | Ala | Lys | Thr | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Glu | Glu | Pro | Thr | Val | His | Ser | Ser | Glu | Ala | Ala | Ile | Met | Asn | Asn | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Ser | Gln | Gly | Asp | Gly | Glu | His | Phe | Ala | His | Pro | Pro | Ser | Glu | Val | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Lys | Met | His | Phe | Ala | Asn | Gln | Ser | Ile | Glu | Pro | Leu | Gly | Arg | Lys | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Glu | Arg | Ser | Glu | Thr | Ser | Ser | Leu | Pro | Gln | Lys | Gly | Leu | Lys | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Ile | Pro | Gly | Leu | Glu | His | Ala | Ser | Ile | Glu | Gly | Pro | Ile | Ala | Asn | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Leu | Ser | Val | Leu | Gly | Thr | Glu | Glu | Leu | Arg | Gln | Arg | Glu | His | Tyr | |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Leu | Lys | Gln | Lys | Arg | Asp | Lys | Leu | Met | Ser | Met | Arg | Lys | Asp | Met | |
| | | | | 305 | | | | | 310 | | | | | 315 | |
| Arg | Thr | Lys | Gln | Ile | Gln | Asn | Met | Glu | Gln | Lys | Gly | Lys | Pro | Thr | |
| | | | | 320 | | | | | 325 | | | | | 330 | |
| Gly | Glu | Val | Glu | Glu | Met | Thr | Glu | Lys | Pro | Glu | Met | Thr | Ala | Glu | |
| | | | | 335 | | | | | 340 | | | | | 345 | |
| Glu | Lys | Gln | Thr | Leu | Leu | Lys | Arg | Arg | Leu | Leu | Ala | Glu | Lys | Leu | |
| | | | | 350 | | | | | 355 | | | | | 360 | |
| Lys | Glu | Glu | Val | Ile | Asn | Lys | | | | | | | | | |
| | | | | 365 | | | | | | | | | | | |

<210> 9
 <211> 418
 <212> DNA
 <213> Homo sapiens

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 aaggttacct caaagaaatt ggaattaatg aagatcaatt tcaagaagca 150
 tgcacttctc ctcttgcaaa gacccataca tcacaggcca tttttgcaac 200
 ctgtgttggc agcagaagat tttactatct ttaaagcaat gatggtccag 250
 aaaaacattg aaatgcagct gcaagccatt cgaataattc aagagagaaa 300

tggtgtatta cctgactgct taaccgatgg ctctgatgtg gtcagtgacc 350
 ttgaacacga agagatgaaa atcctgaggg aagttcttag aaaatcaaaa 400
 gaggaatatg accaggaa 418

<210> 10
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 10
 ttgacctata cagagattca tc 22

<210> 11
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 11
 ctaagaactt ccctcaggat ttt 23

<210> 12
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 12
 atgaagatca atttcaagaa gcatgcactt ctctctttgc 40

<210> 13
 <211> 2886
 <212> DNA
 <213> Homo sapiens

<400> 13
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 ctatacctac tgtagcttct ccacgtatgg accctaaagg ctactgctgc 100
 tactacgggg ctagacagtt actgtctcag ctctaggatg tgcgttcttc 150
 cactagaagc tcttctgagg gaggtaatta aaaaacagtg gaatggaaaa 200
 acagtgctgt agtcatcctg taatatgctc cttgtcaaca atgtatacat 250
 tcctgctagg tgccatattc attgctttta gctcaagtcg catcttacta 300
 gtgaagtatt ctgccaatga agaaaacaag tatgattatc ttccaactac 350
 tgtgaatgtg tgctcagaac tggatgaagct agttttctgt gtgcttgtgt 400
 cattctgtgt tataaagaaa gatcatcaaa gtagaaattt gaaatatgct 450

cagacacaac atctcagaat ttttaattttt agaaattcat gggaaattgg 2100
 atttttgtaa taatcttttg atgttttaaa cattgggtcc ctagtcacca 2150
 tagttaccac ttgtatttta agtcatttaa acaagccacg gtggggcttt 2200
 tttctctca gtttgaggag aaaaatcttg atgtcattac tcctgaatta 2250
 ttacattttg gagaataaga gggcatttta ttttattagt tactaattca 2300
 agctgtgact attgtatatc tttccaagag ttgaaatgct ggcttcagaa 2350
 tcataccaga ttgtcagtga agctgatgcc taggaacttt taaagggatc 2400
 ctttcaaaag gatcacttag caaacacatg ttgactttta actgatgtat 2450
 gaatattaat actctaaaaa tagaaagacc agtaatatat aagtcacttt 2500
 acagtgtac ttcacactta aaagtgcag gtatttttca tgggtattttg 2550
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 ttaaaaatta gcaaacaaaa gtgacttgct caggggtcatg cagctgggtg 2650
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 catactgtaa atatgagctt tatggtgtca ttctcagaaa cttatacatt 2750
 tctgctctcc tttctcctaa gtttcatgca gatgaatata aggtaatata 2800
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<210> 14

<211> 424

<212> PRT

<213> Homo sapiens

<400> 14

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Lys | Gln | Cys | Cys | Ser | His | Pro | Val | Ile | Cys | Ser | Leu | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Met | Tyr | Thr | Phe | Leu | Leu | Gly | Ala | Ile | Phe | Ile | Ala | Leu | Ser |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Ser | Ser | Arg | Ile | Leu | Leu | Val | Lys | Tyr | Ser | Ala | Asn | Glu | Glu | Asn |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Lys | Tyr | Asp | Tyr | Leu | Pro | Thr | Thr | Val | Asn | Val | Cys | Ser | Glu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Val | Lys | Leu | Val | Phe | Cys | Val | Leu | Val | Ser | Phe | Cys | Val | Ile | Lys |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Lys | Asp | His | Gln | Ser | Arg | Asn | Leu | Lys | Tyr | Ala | Ser | Trp | Lys | Glu |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Phe | Ser | Asp | Phe | Met | Lys | Trp | Ser | Ile | Pro | Ala | Phe | Leu | Tyr | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Leu | Asp | Asn | Leu | Ile | Val | Phe | Tyr | Val | Leu | Ser | Tyr | Leu | Gln | Pro |
| | | | | 110 | | | | | 115 | | | | | 120 |

| | | | |
|-----------------|-------------------------|-----------------|-----|
| Ala Met Ala Val | Ile Phe Ser Asn Phe Ser | Ile Ile Thr Thr | Ala |
| 125 | 130 | | 135 |
| Leu Leu Phe Arg | Ile Val Leu Lys Arg Arg | Leu Asn Trp Ile | Gln |
| 140 | 145 | | 150 |
| Trp Ala Ser Leu | Leu Thr Leu Phe Leu Ser | Ile Val Ala Leu | Thr |
| 155 | 160 | | 165 |
| Ala Gly Thr Lys | Thr Leu Gln His Asn Leu | Ala Gly Arg Gly | Phe |
| 170 | 175 | | 180 |
| His His Asp Ala | Phe Phe Ser Pro Ser Asn | Ser Cys Leu Leu | Phe |
| 185 | 190 | | 195 |
| Arg Ser Glu Cys | Pro Arg Lys Asp Asn Cys | Thr Ala Lys Glu | Trp |
| 200 | 205 | | 210 |
| Thr Phe Pro Glu | Ala Lys Trp Asn Thr Thr | Ala Arg Val Phe | Ser |
| 215 | 220 | | 225 |
| His Ile Arg Leu | Gly Met Gly His Val Leu | Ile Ile Val Gln | Cys |
| 230 | 235 | | 240 |
| Phe Ile Ser Ser | Met Ala Asn Ile Tyr Asn | Glu Lys Ile Leu | Lys |
| 245 | 250 | | 255 |
| Glu Gly Asn Gln | Leu Thr Glu Ser Ile Phe | Ile Gln Asn Ser | Lys |
| 260 | 265 | | 270 |
| Leu Tyr Phe Phe | Gly Ile Leu Phe Asn Gly | Leu Thr Leu Gly | Leu |
| 275 | 280 | | 285 |
| Gln Arg Ser Asn | Arg Asp Gln Ile Lys Asn | Cys Gly Phe Phe | Tyr |
| 290 | 295 | | 300 |
| Gly His Ser Ala | Phe Ser Val Ala Leu Ile | Phe Val Thr Ala | Phe |
| 305 | 310 | | 315 |
| Gln Gly Leu Ser | Val Ala Phe Ile Leu Lys | Phe Leu Asp Asn | Met |
| 320 | 325 | | 330 |
| Phe His Val Leu | Met Ala Gln Val Thr Thr | Val Ile Ile Thr | Thr |
| 335 | 340 | | 345 |
| Val Ser Val Leu | Val Phe Asp Phe Arg Pro | Ser Leu Glu Phe | Phe |
| 350 | 355 | | 360 |
| Leu Glu Ala Pro | Ser Val Leu Leu Ser Ile | Phe Ile Tyr Asn | Ala |
| 365 | 370 | | 375 |
| Ser Lys Pro Gln | Val Pro Glu Tyr Ala Pro | Arg Gln Glu Arg | Ile |
| 380 | 385 | | 390 |
| Arg Asp Leu Ser | Gly Asn Leu Trp Glu Arg | Ser Ser Gly Asp | Gly |
| 395 | 400 | | 405 |
| Glu Glu Leu Glu | Arg Leu Thr Lys Pro Lys | Ser Asp Glu Ser | Asp |
| 410 | 415 | | 420 |
| Glu Asp Thr Phe | | | |

<210> 15
 <211> 755
 <212> DNA
 <213> Homo sapiens

<400> 15
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 tcgtgggtttt tgttctgcaa taggcggctt agagggaggg gctttttcgc 100
 ctatacctac tgtagcttct ccacgtatgg accctaaagg ctactgctgc 150
 tactacgggg ctagacagtt actgtctcag ctctaggatg tgcgttcttc 200
 cactagaagc ttttctgagg gaggtaatta aaaaacagtg gaatggaaaa 250
 acagtgcgtg agtcatcctg taatatgctc cttgtcaaca atgtatacat 300
 tcctgctagg tgccatattc attgctttta gctcaagtcg catcttacta 350
 gtgaagtatt ctgccaatga agaaaacaag tatgattatc ttccaactac 400
 tgtgaatgtg tgctcagaac tgggtgaagct agttttctgt gtgcttgtgt 450
 cattctgtgt tataaagaaa gatcatcaaa gtagaaattt gaaatatgct 500
 tcctggaagg aattctctga tticatgaag tgggccattc ctgcctttct 550
 ttatttcctg gataacttga ttgtcttcta tgtcctgtcc tatcttcaac 600
 cagccatggc tgttatcttc tcaaatttta gcattataac aacagctctt 650
 ctattcagga tagtgctgaa gaggcgtcta aactggatcc agtgggcttc 700
 cctcctgact ttatttttgt ctattgtggc cttgactgcc gggactaaaa 750
 cttta 755

<210> 16
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 16
 ctatacctac tgtagcttct 20

<210> 17
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 17
 tcagagaatt ccttccagga 20

<210> 18
 <211> 40
 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 18

acagtgtgtgt agtcatcctg taatatgctc cttgtcaaca 40

<210> 19

<211> 2142

<212> DNA

<213> Homo sapiens

<400> 19

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 cgcgcggcgcg ccgtggctaa ggctgctacg aagcgagctt gggaggagca 100
 gcggcctgcg gggcagagga gcatcccgtc taccaggtcc caagcggcgt 150
 ggcccgcggg tcatggccaa aggagaaggc gccgagagcg gctccgcggc 200
 ggggctgcta cccaccagca tcttccaaag cactgaacgc ccggcccagg 250
 tgaagaaaga accgaaaaag aagaaacaac agttgtctgt ttgcaacaag 300
 ctttgcctatg cacttggggg agccccctac caggtgacgg gctgtgccct 350
 gggtttcttc cttcagatct acctattgga tgtggctcag gtgggccctt 400
 tctctgcctc catcatcctg tttgtgggcc gagcctggga tgccatcaca 450
 gacccccctg tgggcctctg catcagcaaa tccccctgga cctgcctggg 500
 tcgccttatg ccctggatca tcttctccac gccctggcc gtcattgcct 550
 acttctcat ctggttcgtg cccgacttcc cacacggcca gacctattgg 600
 tacctgcttt tctattgcct ctttgaaaca atggtcacgt gtttccatgt 650
 tccctactcg gctctcacca tgttcatcag caaccgagca gactgagcgg 700
 gattctgcca ccgcctatcg gatgactgtg gaagtgtctg gcacagtgt 750
 gggcacggcg atccaggagc aaatcgtggg ccaagcagac acgccttggt 800
 tccaggactt caatagctct acagtagctt caciaagtgc caaccataca 850
 catggcacca cttcacacag ggaaacgcaa aaggcatacc tgctggcagc 900
 gggggtcatt gtctgtatct atataatctg tgctgtcatc ctgatcctgg 950
 gcgtgcggga gcagagagaa ccttatgaag ccagcagtc tgagccaatc 1000
 gcctacttcc ggggcctacg gctgggtcatg agccacggcc catacatcaa 1050
 acttattact ggcttctctc tcacctcctt ggctttcatg ctggtggagg 1100
 ggaactttgt cttgttttgc acctacacct tgggcttccg caatgaattc 1150
 cagaatctac tcttgcccat catgctctcg gccactttaa ccattcccat 1200
 ctggcagtggt ttcttgacct ggtttggcaa gaagacagct gtatatgttg 1250

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Glu | Arg | Asp | Ser | Ala 110 | Thr | Ala | Tyr | Arg | Met 115 | Thr | Val | Glu | Val | Leu 120 |
| Gly | Thr | Val | Leu | Gly 125 | Thr | Ala | Ile | Gln | Gly 130 | Gln | Ile | Val | Gly | Gln 135 |
| Ala | Asp | Thr | Pro | Cys 140 | Phe | Gln | Asp | Phe | Asn 145 | Ser | Ser | Thr | Val | Ala 150 |
| Ser | Gln | Ser | Ala | Asn 155 | His | Thr | His | Gly | Thr 160 | Thr | Ser | His | Arg | Glu 165 |
| Thr | Gln | Lys | Ala | Tyr 170 | Leu | Leu | Ala | Ala | Gly 175 | Val | Ile | Val | Cys | Ile 180 |
| Tyr | Ile | Ile | Cys | Ala 185 | Val | Ile | Leu | Ile | Leu 190 | Gly | Val | Arg | Glu | Gln 195 |
| Arg | Glu | Pro | Tyr | Glu 200 | Ala | Gln | Gln | Ser | Glu 205 | Pro | Ile | Ala | Tyr | Phe 210 |
| Arg | Gly | Leu | Arg | Leu 215 | Val | Met | Ser | His | Gly 220 | Pro | Tyr | Ile | Lys | Leu 225 |
| Ile | Thr | Gly | Phe | Leu 230 | Phe | Thr | Ser | Leu | Ala 235 | Phe | Met | Leu | Val | Glu 240 |
| Gly | Asn | Phe | Val | Leu 245 | Phe | Cys | Thr | Tyr | Thr 250 | Leu | Gly | Phe | Arg | Asn 255 |
| Glu | Phe | Gln | Asn | Leu 260 | Leu | Leu | Ala | Ile | Met 265 | Leu | Ser | Ala | Thr | Leu 270 |
| Thr | Ile | Pro | Ile | Trp 275 | Gln | Trp | Phe | Leu | Thr 280 | Arg | Phe | Gly | Lys | Lys 285 |
| Thr | Ala | Val | Tyr | Val 290 | Gly | Ile | Ser | Ser | Ala 295 | Val | Pro | Phe | Leu | Ile 300 |
| Leu | Val | Ala | Leu | Met 305 | Glu | Ser | Asn | Leu | Ile 310 | Ile | Thr | Tyr | Ala | Val 315 |
| Ala | Val | Ala | Ala | Gly 320 | Ile | Ser | Val | Ala | Ala 325 | Ala | Phe | Leu | Leu | Pro 330 |
| Trp | Ser | Met | Leu | Pro 335 | Asp | Val | Ile | Asp | Asp 340 | Phe | His | Leu | Lys | Gln 345 |
| Pro | His | Phe | His | Gly 350 | Thr | Glu | Pro | Ile | Phe 355 | Phe | Ser | Phe | Tyr | Val 360 |
| Phe | Phe | Thr | Lys | Phe 365 | Ala | Ser | Gly | Val | Ser 370 | Leu | Gly | Ile | Ser | Thr 375 |
| Leu | Ser | Leu | Asp | Phe 380 | Ala | Gly | Tyr | Gln | Thr 385 | Arg | Gly | Cys | Ser | Gln 390 |
| Pro | Glu | Arg | Val | Lys 395 | Phe | Thr | Leu | Asn | Met 400 | Leu | Val | Thr | Met | Ala 405 |
| Pro | Ile | Val | Leu | Ile 410 | Leu | Leu | Gly | Leu | Leu 415 | Leu | Phe | Lys | Met | Tyr 420 |

Pro Ile Asp Glu Glu Arg Arg Arg Gln Asn Lys Lys Ala Leu Gln
425 430 435

Ala Leu Arg Asp Glu Ala Ser Ser Ser Gly Cys Ser Glu Thr Asp
440 445 450

Ser Thr Glu Leu Ala Ser Ile Leu
455

<210> 21
<211> 571
<212> DNA
<213> Homo sapiens

<400> 21
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tatataatct gtgctgtcat cctgatacctg ggcgtgcggg agcagagaga 100
accctatgaa gccagcagct ctgagccaat cgcctacttc cggggcctac 150
ggctgggtcat gagccacggc ccatacatca aacttattac tggcttcctc 200
ttcacctcct tggctttcat gctgggtggag gggaactttg tcttgttttg 250
cacctacacc ttgggcttcc gcaatgaatt ccagaatcta ctctggcca 300
tcatgctctc ggccacttta accattccca tctggcagtg gttcttgacc 350
cggtttggca agaagacagc tgtatatgtt gggatctcat cagcagtgcc 400
atttctcatc ttggtggccc tcatggagag taacctcatc attacatatg 450
cggtagctgt ggcagctggc atcagtgtgg cagctgcctt cttactaccc 500
tggtccatgc tgctgatgt cattgacgac ttccatctga agcagcccca 550
cttccatgga accgagccca t 571

<210> 22
<211> 1173
<212> DNA
<213> Homo sapiens

<400> 22
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aaacagaaaa cctgttagaa atgtgggtgg ttcagcaagg cctcagtttc 150
cttccttcag ccttgtaat ttggacatct gctgctttca tattttcata 200
cattactgca gtaacactcc accatataga cccggcttta ccttatatca 250
gtgacactgg tacagtagct ccagaaaaat gcttatttgg ggcaatgcta 300
aatattgcgg cagttttatg cattgctacc atttatgttc gttataagca 350
agttcatgct ctgagtcctg aagagaacgt tatcatcaaa ttaaacaagg 400
ctggccttgt acttgggaata ctgagttggt taggactttc tattgtggca 450

aacttccaga aaacaaccct ttttgctgca catgtaagtg gagctgtgct 500
 tacctttggt atgggctcat tatatatgtt tgttcagacc atcctttcct 550
 accaaatgca gcccaaaatc catggcaaac aagtcttctg gatcagactg 600
 ttgttggtta tctggtgtgg agtaagtgca cttagcatgc tgacttgctc 650
 atcagttttg cacagtggca attttgggac tgatttagaa cagaaactcc 700
 attggaaccc cgaggacaaa ggttatgtgc ttcacatgat cactactgca 750
 gcagaatggt ctatgtcatt ttccttcttt gggtttttcc tgacttacat 800
 tcgtgatttt cagaaaattht ctttacgggt ggaagccaat ttacatggat 850
 taaccctcta tgacactgca ccttgcccta ttaacaatga acgaacacgg 900
 ctactttcca gagatattht atgaaaggat aaaatatttc tgtaatgatt 950
 atgattctca gggattgggg aaaggttcac agaagttgct tattcttctc 1000
 tgaaattttc aaccacttaa tcaaggctga cagtaacact gatgaatgct 1050
 gataatcagg aaacatgaaa gaagccattt gatagattat tctaaaggat 1100
 atcatcaaga agactattaa aaacacctat gcctatactt ttttatctca 1150
 gaaaataaag tcaaaagact atg 1173

<210> 23
 <211> 266
 <212> PRT
 <213> Homo sapiens

<400> 23
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 Val Ile Trp Thr Ser Ala Ala Phe Ile Phe Ser Tyr Ile Thr Ala
 20 25 30
 Val Thr Leu His His Ile Asp Pro Ala Leu Pro Tyr Ile Ser Asp
 35 40 45
 Thr Gly Thr Val Ala Pro Glu Lys Cys Leu Phe Gly Ala Met Leu
 50 55 60
 Asn Ile Ala Ala Val Leu Cys Ile Ala Thr Ile Tyr Val Arg Tyr
 65 70 75
 Lys Gln Val His Ala Leu Ser Pro Glu Glu Asn Val Ile Ile Lys
 80 85 90
 Leu Asn Lys Ala Gly Leu Val Leu Gly Ile Leu Ser Cys Leu Gly
 95 100 105
 Leu Ser Ile Val Ala Asn Phe Gln Lys Thr Thr Leu Phe Ala Ala
 110 115 120
 His Val Ser Gly Ala Val Leu Thr Phe Gly Met Gly Ser Leu Tyr
 125 130 135

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Val | Gln | Thr | Ile | Leu | Ser | Tyr | Gln | Met | Gln | Pro | Lys | Ile |
| | | | | 140 | | | | | 145 | | | | | 150 |
| His | Gly | Lys | Gln | Val | Phe | Trp | Ile | Arg | Leu | Leu | Leu | Val | Ile | Trp |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Cys | Gly | Val | Ser | Ala | Leu | Ser | Met | Leu | Thr | Cys | Ser | Ser | Val | Leu |
| | | | | 170 | | | | | 175 | | | | | 180 |
| His | Ser | Gly | Asn | Phe | Gly | Thr | Asp | Leu | Glu | Gln | Lys | Leu | His | Trp |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Asn | Pro | Glu | Asp | Lys | Gly | Tyr | Val | Leu | His | Met | Ile | Thr | Thr | Ala |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Ala | Glu | Trp | Ser | Met | Ser | Phe | Ser | Phe | Phe | Gly | Phe | Phe | Leu | Thr |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Tyr | Ile | Arg | Asp | Phe | Gln | Lys | Ile | Ser | Leu | Arg | Val | Glu | Ala | Asn |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | His | Gly | Leu | Thr | Leu | Tyr | Asp | Thr | Ala | Pro | Cys | Pro | Ile | Asn |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Asn | Glu | Arg | Thr | Arg | Leu | Leu | Ser | Arg | Asp | Ile | | | | |
| | | | | 260 | | | | | 265 | | | | | |

<210> 24
 <211> 485
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 14, 484
 <223> unknown base

<400> 24
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 ctgatgccga gttccgtctc tcgggtcttt tcttggtccc aggcaaagcg 100
 gagcggagat cctcaaacgg cctagtgcct cgcgcttccg gagaaaatca 150
 gcgggtctaataattcctct ggtttgttga agcagttacc aagaatcttc 200
 aaccctttcc cacaaaagct aattgagtag acgttctctg tgagtacacg 250
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<213> Artificial Sequence

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<223> Synthetic oligonucleotide probe

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<212> DNA
<213> Homo sapiens

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ccttctgggtc ttgcgccggt gcaccttcgc cttgtacttg ctgtcgacgc 150
gactgccccg cggggcggaga ctgggctcca ccgaggaggc tggaggcagg 200
tcgctgtggt tcccctccga cctggcagag ctgcgggagc tctctgaggt 250
ccttcgagag taccggaagg agcaccaggc ctacgtgttc ctgctcttct 300
gcggcgccta cctctacaaa cagggttttg ccatccccgc ctccagcttc 350
ctgaatgttt tagctggtgc cttgtttggg ccatggctgg ggcttctgct 400
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<210> 28

<211> 264

<212> PRT

<213> Homo sapiens

<400> 28

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Arg | Pro | Leu | Leu | Gly | Leu | Leu | Leu | Val | Phe | Ala | Gly | Cys | Thr | 1 | 5 | 10 | 15 |
| Phe | Ala | Leu | Tyr | Leu | Leu | Ser | Thr | Arg | Leu | Pro | Arg | Gly | Arg | Arg | 20 | 25 | 30 | |
| Leu | Gly | Ser | Thr | Glu | Glu | Ala | Gly | Gly | Arg | Ser | Leu | Trp | Phe | Pro | 35 | 40 | 45 | |
| Ser | Asp | Leu | Ala | Glu | Leu | Arg | Glu | Leu | Ser | Glu | Val | Leu | Arg | Glu | 50 | 55 | 60 | |
| Tyr | Arg | Lys | Glu | His | Gln | Ala | Tyr | Val | Phe | Leu | Leu | Phe | Cys | Gly | 65 | 70 | 75 | |
| Ala | Tyr | Leu | Tyr | Lys | Gln | Gly | Phe | Ala | Ile | Pro | Gly | Ser | Ser | Phe | 80 | 85 | 90 | |
| Leu | Asn | Val | Leu | Ala | Gly | Ala | Leu | Phe | Gly | Pro | Trp | Leu | Gly | Leu | 95 | 100 | 105 | |
| Leu | Leu | Cys | Cys | Val | Leu | Thr | Ser | Val | Gly | Ala | Thr | Cys | Cys | Tyr | 110 | 115 | 120 | |
| Leu | Leu | Ser | Ser | Ile | Phe | Gly | Lys | Gln | Leu | Val | Val | Ser | Tyr | Phe | 125 | 130 | 135 | |
| Pro | Asp | Lys | Val | Ala | Leu | Leu | Gln | Arg | Lys | Val | Glu | Glu | Asn | Arg | 140 | 145 | 150 | |
| Asn | Ser | Leu | Phe | Phe | Phe | Leu | Leu | Phe | Leu | Arg | Leu | Phe | Pro | Met | 155 | 160 | 165 | |
| Thr | Pro | Asn | Trp | Phe | Leu | Asn | Leu | Ser | Ala | Pro | Ile | Leu | Asn | Ile | 170 | 175 | 180 | |
| Pro | Ile | Val | Gln | Phe | Phe | Phe | Ser | Val | Leu | Ile | Gly | Leu | Ile | Pro | 185 | 190 | 195 | |
| Tyr | Asn | Phe | Ile | Cys | Val | Gln | Thr | Gly | Ser | Ile | Leu | Ser | Thr | Leu | 200 | 205 | 210 | |

Thr Ser Leu Asp Ala Leu Phe Ser Trp Asp Thr Val Phe Lys Leu
 215 220 225

Leu Ala Ile Ala Met Val Ala Leu Ile Pro Gly Thr Leu Ile Lys
 230 235 240

Lys Phe Ser Gln Lys His Leu Gln Leu Asn Glu Thr Ser Thr Ala
 245 250 255

Asn His Ile His Ser Arg Lys Asp Thr
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 <211> 1292
 <212> DNA
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 ggtttccgaa ctgccagctc agaataggaa aataacttgg gattttatat 150
 tggaagacat ggatcttgct gccaacgaga tcagcattta tgacaaactt 200
 tcagagactg ttgatttggg gagacagacc ggccatcagt gtggcatgtc 250
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 tacatgtcag aaaataaggg agttcctctg catgggggtg atgaagacag 550
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 gccaaagtggg ggcgctgctt tcctgagcgg tggttcccat ttccttatcc 850
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 cctatttatc attggcagcg gtgaggccat gttgcagctc atccctccct 1050
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 gatatcggct atgtcgacac caccactgg aaggtctacg ttatagccag 1150

aggggtccag ccttttggtca tctgcatg aaccgctttc tcagaactgt 1200
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 gaaaggggaa aaataaaaaac aaaaacgatg aaactgcaaa aa 1292

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 <211> 347
 <212> PRT
 <213> Homo sapiens

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 35 40 45
 Asn Glu Pro Gln Arg Pro Pro Pro Gln Tyr Pro Leu Leu Ile Val
 50 55 60
 Val Tyr Lys Val Leu Ala Thr Leu Gly Leu Ile Leu Leu Thr Ala
 65 70 75
 Tyr Phe Val Ile Gln Pro Phe Ser Pro Leu Ala Pro Glu Pro Val
 80 85 90
 Leu Ser Gly Ala His Thr Trp Arg Ser Leu Ile His His Ile Arg
 95 100 105
 Leu Met Ser Leu Pro Ile Ala Lys Lys Tyr Met Ser Glu Asn Lys
 110 115 120
 Gly Val Pro Leu His Gly Gly Asp Glu Asp Arg Pro Phe Pro Asp
 125 130 135
 Phe Asp Pro Trp Trp Thr Asn Asp Cys Glu Gln Asn Glu Ser Glu
 140 145 150
 Pro Ile Pro Ala Asn Cys Thr Gly Cys Ala Gln Lys His Leu Lys
 155 160 165
 Val Met Leu Leu Glu Asp Ala Pro Arg Lys Phe Glu Arg Leu His
 170 175 180
 Pro Leu Val Ile Lys Thr Gly Lys Pro Leu Leu Glu Glu Glu Ile
 185 190 195
 Gln His Phe Leu Cys Gln Tyr Pro Glu Ala Thr Glu Gly Phe Ser
 200 205 210
 Glu Gly Phe Phe Ala Lys Trp Trp Arg Cys Phe Pro Glu Arg Trp
 215 220 225
 Phe Pro Phe Pro Tyr Pro Trp Arg Arg Pro Leu Asn Arg Ser Gln
 230 235 240
 Met Leu Arg Glu Leu Phe Pro Val Phe Thr His Leu Pro Phe Pro
 245 250 255

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Asp | Ala | Ser | Leu | Asn | Lys | Cys | Ser | Phe | Leu | His | Pro | Glu | Pro |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Val | Val | Gly | Ser | Lys | Met | His | Lys | Met | Pro | Asp | Leu | Phe | Ile | Ile |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Gly | Ser | Gly | Glu | Ala | Met | Leu | Gln | Leu | Ile | Pro | Pro | Phe | Gln | Cys |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Arg | Arg | His | Cys | Gln | Ser | Val | Ala | Met | Pro | Ile | Glu | Pro | Gly | Asp |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Ile | Gly | Tyr | Val | Asp | Thr | Thr | His | Trp | Lys | Val | Tyr | Val | Ile | Ala |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Arg | Gly | Val | Gln | Pro | Leu | Val | Ile | Cys | Asp | Gly | Thr | Ala | Phe | Ser |
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Glu Leu

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 <211> 478
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 agctcagaat aggaaaataa cttgggattt tatattggaa gacatggatc 200
 ttgctgccaa cgagatcagc atttatgaca aactttcaga gactgttgat 250
 ttggtgagac agacoggcca tcagtgtggc atgtcagaga aggcaattga 300
 aaaatttata agacagctgc tggaaaagaa tgaacctcag agaccccccc 350
 cgcagtatcc tctccttata gttgtgtata aggttctcgc aaccttgga 400
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 <212> DNA
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 gcagagcgct gctcctggct ggtgccactg gtgcgcacgc tgctagaccg 150
 tgcctatgag ccgctggggc tgcagtgggg actgccctcc ctgccacca 200
 ccaatggcag cccacacttc ttggaagact tccaggcttt ttgtgccaca 250

| Time | Lat | Long | Alt | Temp | Hum | Wind | Dir | Speed | Pressure | Clouds | Visibility | Remarks |
|------|-----------|------------|------|------|-----|------|-----|-------|----------|--------|------------|---------|
| 0000 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0100 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0200 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0300 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0400 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0500 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0600 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0700 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0800 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 0900 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1000 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1100 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1200 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1300 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1400 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1500 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1600 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1700 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1800 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 1900 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 2000 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 2100 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 2200 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |
| 2300 | 15° 00' N | 155° 00' E | 1000 | 28.0 | 85 | 10 | 090 | 10 | 1013.5 | 0 | 10 | Clear |

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<210> 33

<211> 1003

<212> PRT

<213> Homo sapiens

<400> 33

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| Met | Ser | Gln | Phe | Glu | Met | Asp | Thr | Tyr | Ala | Lys | Ser | His | Asp | Leu | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Ser | Gly | Phe | Trp | Asn | Ala | Cys | Tyr | Asp | Met | Leu | Met | Ser | Ser | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Gly | Gln | Arg | Arg | Gln | Trp | Glu | Arg | Ala | Gln | Ser | Arg | Arg | Ala | Phe | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Gln | Glu | Leu | Val | Leu | Glu | Pro | Ala | Gln | Arg | Arg | Ala | Arg | Leu | Glu | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Gly | Leu | Arg | Tyr | Thr | Ala | Val | Leu | Lys | Gln | Gln | Ala | Thr | Gln | His | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Ser | Met | Ala | Leu | Leu | His | Trp | Gly | Ala | Leu | Trp | Arg | Gln | Leu | Ala | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Ser | Pro | Cys | Gly | Ala | Trp | Ala | Leu | Arg | Asp | Thr | Pro | Ile | Pro | Arg | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Trp | Lys | Leu | Ser | Ser | Ala | Glu | Thr | Tyr | Ser | Arg | Met | Arg | Leu | Lys | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Leu | Val | Pro | Asn | His | His | Phe | Asp | Pro | His | Leu | Glu | Ala | Ser | Ala | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Leu | Arg | Asp | Asn | Leu | Gly | Glu | Val | Pro | Leu | Thr | Pro | Thr | Glu | Glu | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Ala | Ser | Leu | Pro | Leu | Ala | Val | Thr | Lys | Glu | Ala | Lys | Val | Ser | Thr | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Pro | Pro | Glu | Leu | Leu | Gln | Glu | Asp | Gln | Leu | Gly | Glu | Asp | Glu | Leu | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Ala | Glu | Leu | Glu | Thr | Pro | Met | Glu | Ala | Ala | Glu | Leu | Asp | Glu | Gln | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Arg | Glu | Lys | Leu | Val | Leu | Ser | Ala | Glu | Cys | Gln | Leu | Val | Thr | Val | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Val | Ala | Val | Val | Pro | Gly | Leu | Leu | Glu | Val | Thr | Thr | Gln | Asn | Val | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Tyr | Phe | Tyr | Asp | Gly | Ser | Thr | Glu | Arg | Val | Glu | Thr | Glu | Glu | Gly | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Ile | Gly | Tyr | Asp | Phe | Arg | Arg | Pro | Leu | Ala | Gln | Leu | Arg | Glu | Val | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| His | Leu | Arg | Arg | Phe | Asn | Leu | Arg | Arg | Ser | Ala | Leu | Glu | Leu | Phe | |
| | | | | 260 | | | | | 265 | | | | | 270 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gly | Ala | Val | Asp | Leu | Asp | His | Val | Thr | Asp | Glu | Arg | Glu | Arg | Lys | |
| | | | | 590 | | | | | 595 | | | | | 600 | |
| Ala | Leu | Glu | Gly | Ile | Ile | Ser | Asn | Phe | Gly | Gln | Thr | Pro | Cys | Gln | |
| | | | | 605 | | | | | 610 | | | | | 615 | |
| Leu | Leu | Lys | Glu | Pro | His | Pro | Thr | Arg | Leu | Ser | Ala | Glu | Glu | Ala | |
| | | | | 620 | | | | | 625 | | | | | 630 | |
| Ala | His | Arg | Leu | Ala | Arg | Leu | Asp | Thr | Asn | Ser | Pro | Ser | Ile | Phe | |
| | | | | 635 | | | | | 640 | | | | | 645 | |
| Gln | His | Leu | Asp | Glu | Leu | Lys | Ala | Phe | Phe | Ala | Glu | Val | Thr | Val | |
| | | | | 650 | | | | | 655 | | | | | 660 | |
| Ser | Ala | Ser | Gly | Leu | Leu | Gly | Thr | His | Ser | Trp | Leu | Pro | Tyr | Asp | |
| | | | | 665 | | | | | 670 | | | | | 675 | |
| Arg | Asn | Ile | Ser | Asn | Tyr | Phe | Ser | Phe | Ser | Lys | Asp | Pro | Thr | Met | |
| | | | | 680 | | | | | 685 | | | | | 690 | |
| Gly | Ser | His | Lys | Thr | Gln | Arg | Leu | Leu | Ser | Gly | Pro | Trp | Val | Pro | |
| | | | | 695 | | | | | 700 | | | | | 705 | |
| Gly | Ser | Gly | Val | Ser | Gly | Gln | Ala | Leu | Ala | Val | Ala | Pro | Asp | Gly | |
| | | | | 710 | | | | | 715 | | | | | 720 | |
| Lys | Leu | Leu | Phe | Ser | Gly | Gly | His | Trp | Asp | Gly | Ser | Leu | Arg | Val | |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Thr | Ala | Leu | Pro | Arg | Gly | Lys | Leu | Leu | Ser | Gln | Leu | Ser | Cys | His | |
| | | | | 740 | | | | | 745 | | | | | 750 | |
| Leu | Asp | Val | Val | Thr | Cys | Leu | Ala | Leu | Asp | Thr | Cys | Gly | Ile | Tyr | |
| | | | | 755 | | | | | 760 | | | | | 765 | |
| Leu | Ile | Ser | Gly | Ser | Arg | Asp | Thr | Thr | Cys | Met | Val | Trp | Arg | Leu | |
| | | | | 770 | | | | | 775 | | | | | 780 | |
| Leu | His | Gln | Gly | Gly | Leu | Ser | Val | Gly | Leu | Ala | Pro | Lys | Pro | Val | |
| | | | | 785 | | | | | 790 | | | | | 795 | |
| Gln | Val | Leu | Tyr | Gly | His | Gly | Ala | Ala | Val | Ser | Cys | Val | Ala | Ile | |
| | | | | 800 | | | | | 805 | | | | | 810 | |
| Ser | Thr | Glu | Leu | Asp | Met | Ala | Val | Ser | Gly | Ser | Glu | Asp | Gly | Thr | |
| | | | | 815 | | | | | 820 | | | | | 825 | |
| Val | Ile | Ile | His | Thr | Val | Arg | Arg | Gly | Gln | Phe | Val | Ala | Ala | Leu | |
| | | | | 830 | | | | | 835 | | | | | 840 | |
| Arg | Pro | Leu | Gly | Ala | Thr | Phe | Pro | Gly | Pro | Ile | Phe | His | Leu | Ala | |
| | | | | 845 | | | | | 850 | | | | | 855 | |
| Leu | Gly | Ser | Glu | Gly | Gln | Ile | Val | Val | Gln | Ser | Ser | Ala | Trp | Glu | |
| | | | | 860 | | | | | 865 | | | | | 870 | |
| Arg | Pro | Gly | Ala | Gln | Val | Thr | Tyr | Ser | Leu | His | Leu | Tyr | Ser | Val | |
| | | | | 875 | | | | | 880 | | | | | 885 | |
| Asn | Gly | Lys | Leu | Arg | Ala | Ser | Leu | Pro | Leu | Ala | Glu | Gln | Pro | Thr | |
| | | | | 890 | | | | | 895 | | | | | 900 | |

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 gaagaggaag aagtgcacgc tccggccctg atccaggact gcacccacc 1000
 cccaccgtcc agccatccaa cctcacttcg ccttacaggt ctccattttg 1050
 tggtaaaaaa aggttttagg ccaggcgccg tggctcacgc ctgtaatcca 1100
 acactttgag aggctgaggc gggcgatca cctgagtcag gagttcgaga 1150
 ccagcctggc caacatggtg aaacctccgt ctctattaaa aatacaaaaa 1200
 ttagccgaga gtggtggcat gcacctgtca tcccagctac tcgggaggct 1250
 gaggcaggag aatcgcttga acccgaggag cagaggttgc agtgagccga 1300
 gatcgcgcca ctgcactcca acctgggtga cagactctgt ctccaaaaca 1350
 aaacaaacaa acaaaaagat tttattaaag atattttgtt aactc 1395

<210> 36
 <211> 321
 <212> PRT
 <213> Homo sapiens

<400> 36
 Arg Thr Arg Gly Arg Thr Arg Gly Gly Cys Glu Lys Val Pro Ile
 1 5 10 15
 Asn Thr Ser Cys Asn Pro Thr Ala His Leu Val Asn Ser Ser Cys
 20 25 30
 Pro Gly Leu Met Cys Val Phe Gln Gly Tyr Ser Ser Lys Gly Leu
 35 40 45
 Ile Gln Arg Ser Val Phe Asn Leu Gln Ile Tyr Gly Val Leu Gly
 50 55 60
 Leu Phe Trp Thr Leu Asn Trp Val Leu Ala Leu Gly Gln Cys Val
 65 70 75
 Leu Ala Gly Ala Phe Ala Ser Phe Tyr Trp Ala Phe His Lys Pro
 80 85 90
 Gln Asp Ile Pro Thr Phe Pro Leu Ile Ser Ala Phe Ile Arg Thr
 95 100 105
 Leu Arg Tyr His Thr Gly Ser Leu Ala Phe Gly Ala Leu Ile Leu
 110 115 120
 Thr Leu Val Gln Ile Ala Arg Val Ile Leu Glu Tyr Ile Asp His
 125 130 135

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Lys | Leu | Arg | Gly | Val | Gln | Asn | Pro | Val | Ala | Arg | Cys | Ile | Met | Cys | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Cys | Phe | Lys | Cys | Cys | Leu | Trp | Cys | Leu | Glu | Lys | Phe | Ile | Lys | Phe | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Leu | Asn | Arg | Asn | Ala | Tyr | Ile | Met | Ile | Ala | Ile | Tyr | Gly | Lys | Asn | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Phe | Cys | Val | Ser | Ala | Lys | Asn | Ala | Phe | Met | Leu | Leu | Met | Arg | Asn | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Ile | Val | Arg | Val | Val | Val | Leu | Asp | Lys | Val | Thr | Asp | Leu | Leu | Leu | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Phe | Phe | Gly | Lys | Leu | Leu | Val | Val | Gly | Gly | Val | Gly | Val | Leu | Ser | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Phe | Phe | Phe | Phe | Ser | Gly | Arg | Ile | Pro | Gly | Leu | Gly | Lys | Asp | Phe | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Lys | Ser | Pro | His | Leu | Asn | Tyr | Tyr | Trp | Leu | Pro | Ile | Met | Thr | Ser | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ile | Leu | Gly | Ala | Tyr | Val | Ile | Ala | Ser | Gly | Phe | Phe | Ser | Val | Phe | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Gly | Met | Cys | Val | Asp | Thr | Leu | Phe | Leu | Cys | Phe | Leu | Glu | Asp | Leu | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Glu | Arg | Asn | Asn | Gly | Ser | Leu | Asp | Arg | Pro | Tyr | Tyr | Met | Ser | Lys | |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Ser | Leu | Leu | Lys | Ile | Leu | Gly | Lys | Lys | Asn | Glu | Ala | Pro | Pro | Asp | |
| | | | | 305 | | | | | 310 | | | | | 315 | |
| Asn | Lys | Lys | Arg | Lys | Lys | | | | | | | | | | |
| | | | | 320 | | | | | | | | | | | |

<210> 37
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 37
 tcgtgccag gggctgatgt gc 22

<210> 38
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 38
 gtctttaccc agccccggga tgcg 24

<210> 39
 <211> 50

<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 39
ggcctaatacc aacgttctgt cttcaatctg caaatctatg gggtcctggg 50

<210> 40
<211> 1365
<212> DNA
<213> Homo sapiens

<400> 40
gagtcttgac cgccgccggg ctcttggtac ctcagcgga gcgccaggcg 50
tcggcgccggt gtggttatgt tcgtgtccga tttccgcaaa gagttctacg 100
agggtggtcca gagccagagg gtccttctct tcgtggcctc ggacgtggat 150
gctctgtgtg cgtgcaagat ccttcaggcc ttgttccagt gtgaccacgt 200
gcaatatacg ctggttccag tttctgggtg gcaagaactt gaaactgcat 250
ttcttgagca taaagaacag tttcattatt ttattctcat aaactgtgga 300
gctaattgtag acctattgga tattcttcaa cctgatgaag aactatatt 350
ctttgtgtgt gactcccata ggccagtcaa tgcgtcaat gtatacaacg 400
ataccagat caaattactc attaaacaag atgatgacct tgaagttccc 450
gcctatgaag acatcttcag ggatgaagag gaggatgaag agcattcagg 500
aaatgacagt gatgggtcag agccttctga gaagcgaca cggttagaag 550
aggagatagt ggagcaaacc atgcggagga ggcagcgcg agagtgggag 600
gcccgagaa gagacatcct ctttgactac gagcagtatg aatatcatgg 650
gacatcgtca gccatggtga tgtttgagct ggcttgatg ctgtccaagg 700
acctgaatga catgctgtgg tgggccatcg ttggactaac agaccagtgg 750
gtgcaagaca agatcactca aatgaaatac gtgactgatg ttggtgtcct 800
gcagcgccac gtttcccgcc acaaccaccg gaacgaggat gaggagaaca 850
cactctccgt ggactgcaca cggatctcct ttgagtatga cctccgctg 900
gtgctctacc agcactggtc cctccatgac agcctgtgca acaccagcta 950
taccgcagcc aggttcaagc tgtggtctgt gcatggacag aagcggtcc 1000
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agagtctgca aataaatttg ggatgaagga catgcgcgtg cagactttca 1150
gcattcattt tgggttcaag cacaagtctc tggccagcga cgtggtcttt 1200

gccaccatgt ctttgatgga gagccccgag aaggatggct cagggacaga 1250
 tcacttcatc caggctctgg acagcctctc caggagtaac ctggacaagc 1300
 tgtaccatgg cctggaactc gccaaagaagc agctgcgagc caccagcag 1350
 accattgccca gctgc 1365

<210> 41
 <211> 566
 <212> PRT
 <213> Homo sapiens

<400> 41
 Met Phe Val Ser Asp Phe Arg Lys Glu Phe Tyr Glu Val Val Gln
 1 5 10 15
 Ser Gln Arg Val Leu Leu Phe Val Ala Ser Asp Val Asp Ala Leu
 20 25 30
 Cys Ala Cys Lys Ile Leu Gln Ala Leu Phe Gln Cys Asp His Val
 35 40 45
 Gln Tyr Thr Leu Val Pro Val Ser Gly Trp Gln Glu Leu Glu Thr
 50 55 60
 Ala Phe Leu Glu His Lys Glu Gln Phe His Tyr Phe Ile Leu Ile
 65 70 75
 Asn Cys Gly Ala Asn Val Asp Leu Leu Asp Ile Leu Gln Pro Asp
 80 85 90
 Glu Asp Thr Ile Phe Phe Val Cys Asp Ser His Arg Pro Val Asn
 95 100 105
 Val Val Asn Val Tyr Asn Asp Thr Gln Ile Lys Leu Leu Ile Lys
 110 115 120
 Gln Asp Asp Asp Leu Glu Val Pro Ala Tyr Glu Asp Ile Phe Arg
 125 130 135
 Asp Glu Glu Glu Asp Glu Glu His Ser Gly Asn Asp Ser Asp Gly
 140 145 150
 Ser Glu Pro Ser Glu Lys Arg Thr Arg Leu Glu Glu Glu Ile Val
 155 160 165
 Glu Gln Thr Met Arg Arg Arg Gln Arg Arg Glu Trp Glu Ala Arg
 170 175 180
 Arg Arg Asp Ile Leu Phe Asp Tyr Glu Gln Tyr Glu Tyr His Gly
 185 190 195
 Thr Ser Ser Ala Met Val Met Phe Glu Leu Ala Trp Met Leu Ser
 200 205 210
 Lys Asp Leu Asn Asp Met Leu Trp Trp Ala Ile Val Gly Leu Thr
 215 220 225
 Asp Gln Trp Val Gln Asp Lys Ile Thr Gln Met Lys Tyr Val Thr
 230 235 240
 Asp Val Gly Val Leu Gln Arg His Val Ser Arg His Asn His Arg

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| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|---------|-----|-----|-----|-----|---------|-----|-----|-----|-----|---------|
| | | | | 245 | | | | | 250 | | | | | 255 |
| Asn | Glu | Asp | Glu | Glu 260 | Asn | Thr | Leu | Ser | Val 265 | Asp | Cys | Thr | Arg | Ile 270 |
| Ser | Phe | Glu | Tyr | Asp 275 | Leu | Arg | Leu | Val | Leu 280 | Tyr | Gln | His | Trp | Ser 285 |
| Leu | His | Asp | Ser | Leu 290 | Cys | Asn | Thr | Ser | Tyr 295 | Thr | Ala | Ala | Arg | Phe 300 |
| Lys | Leu | Trp | Ser | Val 305 | His | Gly | Gln | Lys | Arg 310 | Leu | Gln | Glu | Phe | Leu 315 |
| Ala | Asp | Met | Gly | Leu 320 | Pro | Leu | Lys | Gln | Val 325 | Lys | Gln | Lys | Phe | Gln 330 |
| Ala | Met | Asp | Ile | Ser 335 | Leu | Lys | Glu | Asn | Leu 340 | Arg | Glu | Met | Ile | Glu 345 |
| Glu | Ser | Ala | Asn | Lys 350 | Phe | Gly | Met | Lys | Asp 355 | Met | Arg | Val | Gln | Thr 360 |
| Phe | Ser | Ile | His | Phe 365 | Gly | Phe | Lys | His | Lys 370 | Phe | Leu | Ala | Ser | Asp 375 |
| Val | Val | Phe | Ala | Thr 380 | Met | Ser | Leu | Met | Glu 385 | Ser | Pro | Glu | Lys | Asp 390 |
| Gly | Ser | Gly | Thr | Asp 395 | His | Phe | Ile | Gln | Ala 400 | Leu | Asp | Ser | Leu | Ser 405 |
| Arg | Ser | Asn | Leu | Asp 410 | Lys | Leu | Tyr | His | Gly 415 | Leu | Glu | Leu | Ala | Lys 420 |
| Lys | Gln | Leu | Arg | Ala 425 | Thr | Gln | Gln | Thr | Ile 430 | Ala | Ser | Cys | Leu | Cys 435 |
| Thr | Asn | Leu | Val | Ile 440 | Ser | Gln | Gly | Pro | Phe 445 | Leu | Tyr | Cys | Ser | Leu 450 |
| Met | Glu | Gly | Thr | Pro 455 | Asp | Val | Met | Leu | Phe 460 | Ser | Arg | Pro | Ala | Ser 465 |
| Leu | Ser | Leu | Leu | Ser 470 | Lys | His | Leu | Leu | Lys 475 | Ser | Phe | Val | Cys | Ser 480 |
| Thr | Lys | Asn | Arg | Arg 485 | Cys | Lys | Leu | Leu | Pro 490 | Leu | Val | Met | Ala | Ala 495 |
| Pro | Leu | Ser | Met | Glu 500 | His | Gly | Thr | Val | Thr 505 | Val | Val | Gly | Ile | Pro 510 |
| Pro | Glu | Thr | Asp | Ser 515 | Ser | Asp | Arg | Lys | Asn 520 | Phe | Phe | Gly | Arg | Ala 525 |
| Phe | Glu | Lys | Ala | Ala 530 | Glu | Ser | Thr | Ser | Ser 535 | Arg | Met | Leu | His | Asn 540 |
| His | Phe | Asp | Leu | Ser 545 | Val | Ile | Glu | Leu | Lys 550 | Ala | Glu | Asp | Arg | Ser 555 |
| Lys | Phe | Leu | Asp | Ala | Leu | Ile | Ser | Leu | Leu | Ser | | | | |

```
<210> 42
<211> 380
<212> DNA
<213> Homo sapiens
```

```
<220>
<221> unsure
<222> 44, 118, 172, 183
<223> unknown base
```

```
<400> 42
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ccgatttccg caaagagttc tacgaggtgg tccagagcca gagggtcctt 100
ctcttcgtgg cctcggangt ggatgctctg tgtgcgtgca agatccttca 150
ggccttgttc cagtgtgacc angtgcaata tangctgggt ccagtttctg 200
ggtggcaaga acttgaaact gcatttcttg agcataaaga acagtttcat 250
tattttattc tcataaactg tggagctaata gtagacctat tggatattct 300
tcaacctgat gaagacacta tattctttgt gtgtgacacc cataggccag 350
tcaatgttgt caatgtatac aacgataccc 380
```

```
<210> 43
<211> 25
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Synthetic oligonucleotide probe

```
<400> 43
ttccgcaaag agttctacga ggtgg 25
```

```
<210> 44
<211> 26
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Synthetic oligonucleotide probe

<400> 44
attgacaaca ttgactggcc tatggg 26

```
<210> 45
<211> 50
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Synthetic oligonucleotide probe

<400> 45
gtggatgctc tgtgtgcgtg caagatcctt caggccttgt tccagtgtga 50

<210> 46

<211> 3089
 <212> DNA
 <213> Homo sapiens

<400> 46
 caggaaccct ctctttgggt ctggattggg acccctttcc agtaccattt 50
 tttctagtga accacgaagg gacgatacca gaaaacaccc tcaacccaaa 100
 ggaaatagac tacagcccca attggctgac tttggctata gaaaaaagaa 150
 aggaacgaaa agagacagtt ttttttggaa agctaagtct tccctttatc 200
 gagtcaagaa accccccctt cttgagctat ttacagcttt taacaattga 250
 gtaaagtacg ctccggtcac catggtgaca gccgccctgg gtcccgtctg 300
 ggcagcgctc ctgctctttc tctgatgtg tgagatccgt atggtggagc 350
 tcacctttga cagagctgtg gccagcggct gccaacgggt ctgtgactct 400
 gaggaccccc tggatcctgc ccatgtatcc tcagcctctt cctccggccg 450
 cccccacgcc ctgcctgaga tcagacccta cattaatatc accatcctga 500
 agggtgacaa aggggaccca ggcccaatgg gcctgccagg gtacatgggc 550
 agggaggggtc cccaagggga gcctggccct cagggcagca agggtgacaa 600
 gggggagatg ggcagccccg gcgccccgtg ccagaagcgc ttcttcgcct 650
 tctcagtggg ccgcaagacg gccctgcaca gcggcgagga cttccagacg 700
 ctgctcttcg aaagggctct tgtgaacctt gatgggtgct ttgacatggc 750
 gaccggccag tttgctgctc cctgcggtg catctacttc ttcagcctca 800
 atgtgcacag ctggaattac aaggagacgt acgtgcacat tatgcataac 850
 cagaaagagg ctgtcatcct gtacgcgcag ccagcgcagc gcagcatcat 900
 gcagagccag agtgtgatgc tggacctggc ctacggggac cgcgtctggg 950
 tgcggtctct caagcgccag cgcgagaacg ccatctacag caacgacttc 1000
 gacacctaca tcacctcag cggccacctc atcaaggccg aggacgactg 1050
 agggcctctg ggccaccctc ccggtggag agctcaggtg ctggtcccgt 1100
 cccctgcagg gctcagtttg cactgctgtg aagcaggaag gccagggagg 1150
 tccccgggga cctggcattc tggggagacc ctgcttctat cttggctgcc 1200
 atcatccctc ccagcctatt totgctctc tcttctctct tggacctatt 1250
 ttaagaagct tgctaacctc aatattctag aactttccca gcctcgtagc 1300
 ccagcacttc tcaaacttgg aaatgcatgc gaatcaccog gggttcgtgt 1350
 taaatgcaga ttctgactca gcaggtctga gtgggtccag gattctgtgt 1400
 ttctcatatg ttctgggtg atgctgatgg ggtcagtcta tgaaccacac 1450

| | | | | | |
|-------------|-------------|-------------|-------------|-------------|------|
| tgagacagag | aggttctagg | actttctcaa | tattctagta | ctttctgaac | 1500 |
| attctggaat | cctccccaca | ttctagaatt | ctcccaacat | ttttttttct | 1550 |
| tgagacagag | tcttgctctg | ttgcccaggc | tagagtgcag | tgggtgcaatc | 1600 |
| tcagttcact | gcaacctctg | cctcccgggt | tcaagcgatt | cttctgcctc | 1650 |
| agcctcccta | gtggctggga | ttacaggcgc | ctgctaccat | gcctgggctaa | 1700 |
| tttttgatt | tttagtagag | atggggtttc | accatattgg | ccaggctgggt | 1750 |
| cttgaactcc | tgacttcagg | tgaccacccc | gcctcggcct | ctcaaaatgc | 1800 |
| tggtgagcc | gggtgtgagcc | accgtgcctg | gccaattcca | acattcttaa | 1850 |
| attctctcat | ccctccaggg | ctccccgtgc | tatgttctct | ttacccttc | 1900 |
| cccctcttct | cttgctcagg | cctgcaccac | tgagccacc | gttcatttat | 1950 |
| tcattcatta | aacactgagc | actcactctg | tgctgggtcc | cggaagggt | 2000 |
| gaggggtca | gacacaggcc | ctgcccctgc | cctcagtgc | tggccagtcc | 2050 |
| agcccaggcg | gggagagatg | tgtacatagg | ttttaagca | gaccagagc | 2100 |
| tcagggggc | ctgtgttctg | gggtgttcagg | tgctgctgggt | cctccattac | 2150 |
| ccactgctcc | ccaaggctgg | tgggacgggg | tcccgggtggc | aggggcaggt | 2200 |
| atctccttcc | cgttctcat | ccacctgccc | agtgtctatc | gttacagcaa | 2250 |
| accccagggg | gccttgcca | gggtcaagggt | tctgtgagga | gaggaccag | 2300 |
| gagtggtggg | gcatttgggg | gggtgaagtgg | ccccgaaga | atggaaccca | 2350 |
| cacccatagc | tctccccaca | gctgatacgg | catcctgcga | gaagacctgc | 2400 |
| cctcctcact | gggatcccct | tctgcctcc | tcccagggt | ctgccagggc | 2450 |
| cttgctcagt | cccttcacc | aaagtcatct | gaacttccgt | ttcccaggg | 2500 |
| cctccagctg | ccctcagaca | ctgatgtctg | tcccaggtg | ctctctgccc | 2550 |
| ctcatgcccc | tctcaccggc | ccagtcccc | gactctccag | gctttatcaa | 2600 |
| gggtgctaagg | cccgggtggg | cagctcctcg | tctcagagcc | ctcctccggc | 2650 |
| ctgggtgctgc | ctttacaaac | acctgcagga | gaagggccac | ggaagcccca | 2700 |
| ggcttttagag | ccctcagcag | gtctggggag | ctagagcaaa | ggagggacct | 2750 |
| caggccttcc | gtttcttctt | ccagggtggg | gtggcctgggt | gttcccctag | 2800 |
| ccttccaaac | ccaggtggcc | tgcccttctc | cccagaggga | ggcggcctcc | 2850 |
| gccattgggt | gctcatgcag | actctggggc | tgagggtgcc | cggggggtga | 2900 |
| tctctggtgc | tcacagccga | gggagccgtg | gctccatggc | cagatgacgg | 2950 |
| aaacagggtc | tgaccaagtg | ccaggaagac | ctgtgctata | aaccaccctg | 3000 |
| cctgatactg | cccctgctg | acccgcac | gccctgccgt | ccagcatgat | 3050 |

taaagaatgc tgtctcctct tggaaaaaaaa aaaaaaaaa 3089

<210> 47
 <211> 259
 <212> PRT
 <213> Homo sapiens

<220>
 <221> Signal Peptide
 <222> 1-20
 <223> Signal Peptide

<220>
 <221> N-glycosylation Site
 <222> 72-75
 <223> N-glycosylation Site

<220>
 <221> Clq Domain Proteins
 <222> 144-178, 78-111, 84-117
 <223> Clq Domain Proteins

<400> 47
 Met Val Thr Ala Ala Leu Gly Pro Val Trp Ala Ala Leu Leu Leu
 1 5 10 15
 Phe Leu Leu Met Cys Glu Ile Arg Met Val Glu Leu Thr Phe Asp
 20 25 30
 Arg Ala Val Ala Ser Gly Cys Gln Arg Cys Cys Asp Ser Glu Asp
 35 40 45
 Pro Leu Asp Pro Ala His Val Ser Ser Ala Ser Ser Ser Gly Arg
 50 55 60
 Pro His Ala Leu Pro Glu Ile Arg Pro Tyr Ile Asn Ile Thr Ile
 65 70 75
 Leu Lys Gly Asp Lys Gly Asp Pro Gly Pro Met Gly Leu Pro Gly
 80 85 90
 Tyr Met Gly Arg Glu Gly Pro Gln Gly Glu Pro Gly Pro Gln Gly
 95 100 105
 Ser Lys Gly Asp Lys Gly Glu Met Gly Ser Pro Gly Ala Pro Cys
 110 115 120
 Gln Lys Arg Phe Phe Ala Phe Ser Val Gly Arg Lys Thr Ala Leu
 125 130 135
 His Ser Gly Glu Asp Phe Gln Thr Leu Leu Phe Glu Arg Val Phe
 140 145 150
 Val Asn Leu Asp Gly Cys Phe Asp Met Ala Thr Gly Gln Phe Ala
 155 160 165
 Ala Pro Leu Arg Gly Ile Tyr Phe Phe Ser Leu Asn Val His Ser
 170 175 180
 Trp Asn Tyr Lys Glu Thr Tyr Val His Ile Met His Asn Gln Lys
 185 190 195
 Glu Ala Val Ile Leu Tyr Ala Gln Pro Ser Glu Arg Ser Ile Met

| | | | |
|-------------------------------------|-------------------------|-----|-----|
| | 200 | 205 | 210 |
| Gln Ser Gln Ser Val Met Leu Asp Leu | Ala Tyr Gly Asp Arg Val | | |
| 215 | 220 | 225 | |
| Trp Val Arg Leu Phe Lys Arg Gln Arg | Glu Asn Ala Ile Tyr Ser | | |
| 230 | 235 | 240 | |
| Asn Asp Phe Asp Thr Tyr Ile Thr Phe | Ser Gly His Leu Ile Lys | | |
| 245 | 250 | 255 | |
| Ala Glu Asp Asp | | | |

<210> 48
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 48
 ccagacgctg ctcttcgaaa gggtc 25

<210> 49
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 49
 ggtccccgta ggccaggtcc agc 23

<210> 50
 <211> 50
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 50
 ctacttcttc agcctcaatg tgcacagctg gaattacaag gagacgtacg 50

<210> 51
 <211> 2768
 <212> DNA
 <213> Homo sapiens

<400> 51
 actcgaacgc agttgcttcg ggacccagga cccctcggg cccgacccgc 50
 caggaaagac tgaggccgcg gcctgccccg cccggctccc tgcgccgccg 100
 ccgcctcccg ggacagaaga tgtgtctocag ggtccctctg ctgctgccgc 150
 tgctcctgct actggccctg gggcctgggg tgcagggctg cccatccggc 200
 tgccagtgca gccagccaca gacagtcttc tgcaactgcc gccaggggac 250

cacggtgccc cgagacgtgc caccgcacac ggtggggctg tacgtctttg 300
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 cacaacagcc tcctggccct ggagcccggc atcctggaca ctgccaacgt 700
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 gcggctggcc ggcaacaccc gcattgccca gctgcggccc gaggacctgg 900
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|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|--|
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Asp | Leu | Thr | Ala | Asn 110 | Arg | Leu | His | Glu | Ile 115 | Thr | Asn | Glu | Thr | Phe 120 | |
| Arg | Gly | Leu | Arg | Arg 125 | Leu | Glu | Arg | Leu | Tyr 130 | Leu | Gly | Lys | Asn | Arg 135 | |
| Ile | Arg | His | Ile | Gln 140 | Pro | Gly | Ala | Phe | Asp 145 | Thr | Leu | Asp | Arg | Leu 150 | |
| Leu | Glu | Leu | Lys | Leu 155 | Gln | Asp | Asn | Glu | Leu 160 | Arg | Ala | Leu | Pro | Pro 165 | |
| Leu | Arg | Leu | Pro | Arg 170 | Leu | Leu | Leu | Leu | Asp 175 | Leu | Ser | His | Asn | Ser 180 | |
| Leu | Leu | Ala | Leu | Glu 185 | Pro | Gly | Ile | Leu | Asp 190 | Thr | Ala | Asn | Val | Glu 195 | |
| Ala | Leu | Arg | Leu | Ala 200 | Gly | Leu | Gly | Leu | Gln 205 | Gln | Leu | Asp | Glu | Gly 210 | |
| Leu | Phe | Ser | Arg | Leu 215 | Arg | Asn | Leu | His | Asp 220 | Leu | Asp | Val | Ser | Asp 225 | |
| Asn | Gln | Leu | Glu | Arg 230 | Val | Pro | Pro | Val | Ile 235 | Arg | Gly | Leu | Arg | Gly 240 | |
| Leu | Thr | Arg | Leu | Arg 245 | Leu | Ala | Gly | Asn | Thr 250 | Arg | Ile | Ala | Gln | Leu 255 | |
| Arg | Pro | Glu | Asp | Leu 260 | Ala | Gly | Leu | Ala | Ala 265 | Leu | Gln | Glu | Leu | Asp 270 | |
| Val | Ser | Asn | Leu | Ser 275 | Leu | Gln | Ala | Leu | Pro 280 | Gly | Asp | Leu | Ser | Gly 285 | |
| Leu | Phe | Pro | Arg | Leu 290 | Arg | Leu | Leu | Ala | Ala 295 | Ala | Arg | Asn | Pro | Phe 300 | |
| Asn | Cys | Val | Cys | Pro 305 | Leu | Ser | Trp | Phe | Gly 310 | Pro | Trp | Val | Arg | Glu 315 | |
| Ser | His | Val | Thr | Leu 320 | Ala | Ser | Pro | Glu | Glu 325 | Thr | Arg | Cys | His | Phe 330 | |
| Pro | Pro | Lys | Asn | Ala 335 | Gly | Arg | Leu | Leu | Leu 340 | Glu | Leu | Asp | Tyr | Ala 345 | |
| Asp | Phe | Gly | Cys | Pro 350 | Ala | Thr | Thr | Thr | Thr 355 | Ala | Thr | Val | Pro | Thr 360 | |
| Thr | Arg | Pro | Val | Val 365 | Arg | Glu | Pro | Thr | Ala 370 | Leu | Ser | Ser | Ser | Leu 375 | |
| Ala | Pro | Thr | Trp | Leu 380 | Ser | Pro | Thr | Ala | Pro 385 | Ala | Thr | Glu | Ala | Pro 390 | |
| Ser | Pro | Pro | Ser | Thr 395 | Ala | Pro | Pro | Thr | Val 400 | Gly | Pro | Val | Pro | Gln 405 | |
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<212> PRT
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Met Thr Asn Cys Ser Asn Met Ser Leu Arg Lys Val Pro Ala Asp
35 40 45
Leu Thr Pro Ala Thr Thr Thr Leu Asp Leu Ser Tyr Asn Leu Leu
50 55 60
Phe Gln Leu Gln Ser Ser Asp Phe His Ser Val Ser Lys Leu Arg
65 70 75
Val Leu Ile Leu Cys His Asn Arg Ile Gln Gln Leu Asp Leu Lys
80 85 90

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Gln | Asn | Leu | Leu | Gln 410 | His | Lys | Asn | Asp | Glu 415 | Asn | Cys | Ser | Trp | Pro 420 |
| Glu | Thr | Val | Val | Asn 425 | Met | Asn | Leu | Ser | Tyr 430 | Asn | Lys | Leu | Ser | Asp 435 |
| Ser | Val | Phe | Arg | Cys 440 | Leu | Pro | Lys | Ser | Ile 445 | Gln | Ile | Leu | Asp | Leu 450 |
| Asn | Asn | Asn | Gln | Ile 455 | Gln | Thr | Val | Pro | Lys 460 | Glu | Thr | Ile | His | Leu 465 |
| Met | Ala | Leu | Arg | Glu 470 | Leu | Asn | Ile | Ala | Phe 475 | Asn | Phe | Leu | Thr | Asp 480 |
| Leu | Pro | Gly | Cys | Ser 485 | His | Phe | Ser | Arg | Leu 490 | Ser | Val | Leu | Asn | Ile 495 |
| Glu | Met | Asn | Phe | Ile 500 | Leu | Ser | Pro | Ser | Leu 505 | Asp | Phe | Val | Gln | Ser 510 |
| Cys | Gln | Glu | Val | Lys 515 | Thr | Leu | Asn | Ala | Gly 520 | Arg | Asn | Pro | Phe | Arg 525 |
| Cys | Thr | Cys | Glu | Leu 530 | Lys | Asn | Phe | Ile | Gln 535 | Leu | Glu | Thr | Tyr | Ser 540 |
| Glu | Val | Met | Met | Val 545 | Gly | Trp | Ser | Asp | Ser 550 | Tyr | Thr | Cys | Glu | Tyr 555 |
| Pro | Leu | Asn | Leu | Arg 560 | Gly | Thr | Arg | Leu | Lys 565 | Asp | Val | His | Leu | His 570 |
| Glu | Leu | Ser | Cys | Asn 575 | Thr | Ala | Leu | Leu | Ile 580 | Val | Thr | Ile | Val | Val 585 |
| Ile | Met | Leu | Val | Leu 590 | Gly | Leu | Ala | Val | Ala 595 | Phe | Cys | Cys | Leu | His 600 |
| Phe | Asp | Leu | Pro | Trp 605 | Tyr | Leu | Arg | Met | Leu 610 | Gly | Gln | Cys | Thr | Gln 615 |
| Thr | Trp | His | Arg | Val 620 | Arg | Lys | Thr | Thr | Gln 625 | Glu | Gln | Leu | Lys | Arg 630 |
| Asn | Val | Arg | Phe | His 635 | Ala | Phe | Ile | Ser | Tyr 640 | Ser | Glu | His | Asp | Ser 645 |
| Leu | Trp | Val | Lys | Asn 650 | Glu | Leu | Ile | Pro | Asn 655 | Leu | Glu | Lys | Glu | Asp 660 |
| Gly | Ser | Ile | Leu | Ile 665 | Cys | Leu | Tyr | Glu | Ser 670 | Tyr | Phe | Asp | Pro | Gly 675 |
| Lys | Ser | Ile | Ser | Glu 680 | Asn | Ile | Val | Ser | Phe 685 | Ile | Glu | Lys | Ser | Tyr 690 |
| Lys | Ser | Ile | Phe | Val 695 | Leu | Ser | Pro | Asn | Phe 700 | Val | Gln | Asn | Glu | Trp 705 |
| Cys | His | Tyr | Glu | Phe 710 | Tyr | Phe | Ala | His | His 715 | Asn | Leu | Phe | His | Glu 720 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Asp | His | Ile | Ile | Leu | Ile | Leu | Leu | Glu | Pro | Ile | Pro | Phe |
| | | | | 725 | | | | | 730 | | | | | 735 |
| Tyr | Cys | Ile | Pro | Thr | Arg | Tyr | His | Lys | Leu | Lys | Ala | Leu | Leu | Glu |
| | | | | 740 | | | | | 745 | | | | | 750 |
| Lys | Lys | Ala | Tyr | Leu | Glu | Trp | Pro | Lys | Asp | Arg | Arg | Lys | Cys | Gly |
| | | | | 755 | | | | | 760 | | | | | 765 |
| Leu | Phe | Trp | Ala | Asn | Leu | Arg | Ala | Ala | Ile | Asn | Val | Asn | Val | Leu |
| | | | | 770 | | | | | 775 | | | | | 780 |
| Ala | Thr | Arg | Glu | Met | Tyr | Glu | Leu | Gln | Thr | Phe | Thr | Glu | Leu | Asn |
| | | | | 785 | | | | | 790 | | | | | 795 |
| Glu | Glu | Ser | Arg | Gly | Ser | Thr | Ile | Ser | Leu | Met | Arg | Thr | Asp | Cys |
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Leu

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<220>
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<210> 61
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| | 185 | 190 | 195 |
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| Glu Val Asp Ala | Arg Arg Leu Thr Arg | Phe Thr Gly Val Ile Thr | 200 210 |
| Gln Gly Arg Asn | Ser Leu Trp Leu Ser | Asp Trp Val Thr Ser Tyr | 215 225 |
| Lys Val Met Val | Ser Asn Asp Ser His | Thr Trp Val Thr Val Lys | 230 240 |
| Asn Gly Ser Gly | Asp Met Ile Phe Glu | Gly Asn Ser Glu Lys Glu | 245 255 |
| Ile Pro Val Leu | Asn Glu Leu Pro Val | Pro Met Val Ala Arg Tyr | 260 270 |
| Ile Arg Ile Asn | Pro Gln Ser Trp Phe | Asp Asn Gly Ser Ile Cys | 275 285 |
| Met Arg Met Glu | Ile Leu Gly Cys Pro | Leu Pro Asp Pro Asn Asn | 290 300 |
| Tyr Tyr His Arg | Arg Asn Glu Met Thr | Thr Thr Asp Asp Leu Asp | 305 315 |
| Phe Lys His His | Asn Tyr Lys Glu Met | Arg Gln Leu Met Lys Val | 320 330 |
| Val Asn Glu Met | Cys Pro Asn Ile Thr | Arg Ile Tyr Asn Ile Gly | 335 345 |
| Lys Ser His Gln | Gly Leu Lys Leu Tyr | Ala Val Glu Ile Ser Asp | 350 360 |
| His Pro Gly Glu | His Glu Val Gly Glu | Pro Glu Phe His Tyr Ile | 365 375 |
| Ala Gly Ala His | Gly Asn Glu Val Leu | Gly Arg Glu Leu Leu Leu | 380 390 |
| Leu Leu Val Gln | Phe Val Cys Gln Glu | Tyr Leu Ala Arg Asn Ala | 395 405 |
| Arg Ile Val His | Leu Val Glu Glu Thr | Arg Ile His Val Leu Pro | 410 420 |
| Ser Leu Asn Pro | Asp Gly Tyr Glu Lys | Ala Tyr Glu Gly Gly Ser | 425 435 |
| Glu Leu Gly Gly | Trp Ser Leu Gly Arg | Trp Thr His Asp Gly Ile | 440 450 |
| Asp Ile Asn Asn | Asn Phe Pro Asp Leu | Asn Thr Leu Leu Trp Glu | 455 465 |
| Ala Glu Asp Arg | Gln Asn Val Pro Arg | Lys Val Pro Asn His Tyr | 470 480 |
| Ile Ala Ile Pro | Glu Trp Phe Leu Ser | Glu Asn Ala Thr Val Ala | 485 495 |
| Ala Glu Thr Arg | Ala Val Ile Ala Trp | Met Glu Lys Ile Pro Phe | |

| 500 | | | | | | | | | | 505 | | | | | 510 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Val | Leu | Gly | Gly | Asn | Leu | Gln | Gly | Gly | Glu | Leu | Val | Val | Ala | Tyr | | | | | |
| | | | | 515 | | | | | 520 | | | | | 525 | | | | | |
| Pro | Tyr | Asp | Leu | Val | Arg | Ser | Pro | Trp | Lys | Thr | Gln | Glu | His | Thr | | | | | |
| | | | | 530 | | | | | 535 | | | | | 540 | | | | | |
| Pro | Thr | Pro | Asp | Asp | His | Val | Phe | Arg | Trp | Leu | Ala | Tyr | Ser | Tyr | | | | | |
| | | | | 545 | | | | | 550 | | | | | 555 | | | | | |
| Ala | Ser | Thr | His | Arg | Leu | Met | Thr | Asp | Ala | Arg | Arg | Arg | Val | Cys | | | | | |
| | | | | 560 | | | | | 565 | | | | | 570 | | | | | |
| His | Thr | Glu | Asp | Phe | Gln | Lys | Glu | Glu | Gly | Thr | Val | Asn | Gly | Ala | | | | | |
| | | | | 575 | | | | | 580 | | | | | 585 | | | | | |
| Ser | Trp | His | Thr | Val | Ala | Gly | Ser | Leu | Asn | Asp | Phe | Ser | Tyr | Leu | | | | | |
| | | | | 590 | | | | | 595 | | | | | 600 | | | | | |
| His | Thr | Asn | Cys | Phe | Glu | Leu | Ser | Ile | Tyr | Val | Gly | Cys | Asp | Lys | | | | | |
| | | | | 605 | | | | | 610 | | | | | 615 | | | | | |
| Tyr | Pro | His | Glu | Ser | Gln | Leu | Pro | Glu | Glu | Trp | Glu | Asn | Asn | Arg | | | | | |
| | | | | 620 | | | | | 625 | | | | | 630 | | | | | |
| Glu | Ser | Leu | Ile | Val | Phe | Met | Glu | Gln | Val | His | Arg | Gly | Ile | Lys | | | | | |
| | | | | 635 | | | | | 640 | | | | | 645 | | | | | |
| Gly | Leu | Val | Arg | Asp | Ser | His | Gly | Lys | Gly | Ile | Pro | Asn | Ala | Ile | | | | | |
| | | | | 650 | | | | | 655 | | | | | 660 | | | | | |
| Ile | Ser | Val | Glu | Gly | Ile | Asn | His | Asp | Ile | Arg | Thr | Ala | Asn | Asp | | | | | |
| | | | | 665 | | | | | 670 | | | | | 675 | | | | | |
| Gly | Asp | Tyr | Trp | Arg | Leu | Leu | Asn | Pro | Gly | Glu | Tyr | Val | Val | Thr | | | | | |
| | | | | 680 | | | | | 685 | | | | | 690 | | | | | |
| Ala | Lys | Ala | Glu | Gly | Phe | Thr | Ala | Ser | Thr | Lys | Asn | Cys | Met | Val | | | | | |
| | | | | 695 | | | | | 700 | | | | | 705 | | | | | |
| Gly | Tyr | Asp | Met | Gly | Ala | Thr | Arg | Cys | Asp | Phe | Thr | Leu | Ser | Lys | | | | | |
| | | | | 710 | | | | | 715 | | | | | 720 | | | | | |
| Thr | Asn | Met | Ala | Arg | Ile | Arg | Glu | Ile | Met | Glu | Lys | Phe | Gly | Lys | | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | |
| Gln | Pro | Val | Ser | Leu | Pro | Ala | Arg | Arg | Leu | Lys | Leu | Arg | Gly | Arg | | | | | |
| | | | | 740 | | | | | 745 | | | | | 750 | | | | | |
| Lys | Arg | Arg | Gln | Arg | Gly | | | | | | | | | | | | | | |
| | | | | 755 | | | | | | | | | | | | | | | |

<210> 63

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 63

gttctcaatg agctacccgt cccc 24

<210> 64
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<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 64
cgcgatgtag tggaactcgg gctc 24

<210> 65
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<212> DNA
<213> Homo sapiens

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cccagccccg gcttcagctc tttcccaggt gttgactcca gctccagctt 150
cagctccagc tccaggtcgg gctccagctc cagccgcagc ttaggcagcg 200
gaggttctgt gtcccagttg ttttccaatt tcaccggctc cgtggatgac 250
cgtgggacct gccagtgtc tgtttccctg ccagacacca cctttcccgt 300
ggacagagtg gaacgcttgg aattcacagc tcatgttctt tctcagaagt 350
ttgagaaaga actttctaaa gtgagggaat atgtccaatt aattagtgtg 400
tatgaaaaga aactgttaaa cctaactgtc cgaattgaca tcatggagaa 450
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 tccatgcctg gaagaaacct ggggacttag ttaggtagat taatatctgg 2000
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 aaaaaatta atagttttct atggaactga tctaagatta gaaaaattaa 2400
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cttttgaatg actttatcat ctagtctttg tctatttttc ctttgatggt 2750
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aaaataaatg attaaaatgt gctttgaaaa aaaaaaaaaa aaaaaaaaaa 2850
aaaa 2854

<210> 67
<211> 510
<212> PRT
<213> Homo sapiens

<400> 67
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20 25
Ser Pro Gly Phe Ser Ser Phe Pro Gly Val Asp Ser Ser Ser Ser 45
35 40
Phe Ser Ser Ser Ser Arg Ser Gly Ser Ser Ser Ser Arg Ser Leu 60
50 55
Gly Ser Gly Gly Ser Val Ser Gln Leu Phe Ser Asn Phe Thr Gly 75
65 70
Ser Val Asp Asp Arg Gly Thr Cys Gln Cys Ser Val Ser Leu Pro 90
80 85
Asp Thr Thr Phe Pro Val Asp Arg Val Glu Arg Leu Glu Phe Thr 105
95 100
Ala His Val Leu Ser Gln Lys Phe Glu Lys Glu Leu Ser Lys Val 120
110 115
Arg Glu Tyr Val Gln Leu Ile Ser Val Tyr Glu Lys Lys Leu Leu 135
125 130
Asn Leu Thr Val Arg Ile Asp Ile Met Glu Lys Asp Thr Ile Ser 150
140 145
Tyr Thr Glu Leu Asp Phe Glu Leu Ile Lys Val Glu Val Lys Glu 165
155 160
Met Glu Lys Leu Val Ile Gln Leu Lys Glu Ser Phe Gly Gly Ser 180
170 175
Ser Glu Ile Val Asp Gln Leu Glu Val Glu Ile Arg Asn Met Thr 195
185 190
Leu Leu Val Glu Lys Leu Glu Thr Leu Asp Lys Asn Asn Val Leu 210
200 205

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ile | Arg | Arg | Glu | Ile | Val | Ala | Leu | Lys | Thr | Lys | Leu | Lys | Glu | 215 | 220 | 225 |
| Cys | Glu | Ala | Ser | Lys | Asp | Gln | Asn | Thr | Pro | Val | Val | His | Pro | Pro | 230 | 235 | 240 |
| Pro | Thr | Pro | Gly | Ser | Cys | Gly | His | Gly | Gly | Val | Val | Asn | Ile | Ser | 245 | 250 | 255 |
| Lys | Pro | Ser | Val | Val | Gln | Leu | Asn | Trp | Arg | Gly | Phe | Ser | Tyr | Leu | 260 | 265 | 270 |
| Tyr | Gly | Ala | Trp | Gly | Arg | Asp | Tyr | Ser | Pro | Gln | His | Pro | Asn | Lys | 275 | 280 | 285 |
| Gly | Leu | Tyr | Trp | Val | Ala | Pro | Leu | Asn | Thr | Asp | Gly | Arg | Leu | Leu | 290 | 295 | 300 |
| Glu | Tyr | Tyr | Arg | Leu | Tyr | Asn | Thr | Leu | Asp | Asp | Leu | Leu | Leu | Tyr | 305 | 310 | 315 |
| Ile | Asn | Ala | Arg | Glu | Leu | Arg | Ile | Thr | Tyr | Gly | Gln | Gly | Ser | Gly | 320 | 325 | 330 |
| Thr | Ala | Val | Tyr | Asn | Asn | Asn | Met | Tyr | Val | Asn | Met | Tyr | Asn | Thr | 335 | 340 | 345 |
| Gly | Asn | Ile | Ala | Arg | Val | Asn | Leu | Thr | Thr | Asn | Thr | Ile | Ala | Val | 350 | 355 | 360 |
| Thr | Gln | Thr | Leu | Pro | Asn | Ala | Ala | Tyr | Asn | Asn | Arg | Phe | Ser | Tyr | 365 | 370 | 375 |
| Ala | Asn | Val | Ala | Trp | Gln | Asp | Ile | Asp | Phe | Ala | Val | Asp | Glu | Asn | 380 | 385 | 390 |
| Gly | Leu | Trp | Val | Ile | Tyr | Ser | Thr | Glu | Ala | Ser | Thr | Gly | Asn | Met | 395 | 400 | 405 |
| Val | Ile | Ser | Lys | Leu | Asn | Asp | Thr | Thr | Leu | Gln | Val | Leu | Asn | Thr | 410 | 415 | 420 |
| Trp | Tyr | Thr | Lys | Gln | Tyr | Lys | Pro | Ser | Ala | Ser | Asn | Ala | Phe | Met | 425 | 430 | 435 |
| Val | Cys | Gly | Val | Leu | Tyr | Ala | Thr | Arg | Thr | Met | Asn | Thr | Arg | Thr | 440 | 445 | 450 |
| Glu | Glu | Ile | Phe | Tyr | Tyr | Tyr | Asp | Thr | Asn | Thr | Gly | Lys | Glu | Gly | 455 | 460 | 465 |
| Lys | Leu | Asp | Ile | Val | Met | His | Lys | Met | Gln | Glu | Lys | Val | Gln | Ser | 470 | 475 | 480 |
| Ile | Asn | Tyr | Asn | Pro | Phe | Asp | Gln | Lys | Leu | Tyr | Val | Tyr | Asn | Asp | 485 | 490 | 495 |
| Gly | Tyr | Leu | Leu | Asn | Tyr | Asp | Leu | Ser | Val | Leu | Gln | Lys | Pro | Gln | 500 | 505 | 510 |

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 <211> 410
 <212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> 206, 217, 387

<223> unknown base

<400> 68

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cctgtcgtcc accctcctcc cactccaggg agctgtggtc atgggtggtgt 100

ggtgaacatc agcaaaccgt ctgtggttca gctcaactgg agaggggtttt 150

cttatctata tgggtgcttgg ggtagggatt actctcccca gcatccaaac 200

aaagggnatgt attgggnggc gccattgaat acagatggga gactgtttgga 250

gtattataga ctgtacaacc cactggatga tttgctattg tatataaatg 300

ctcgagagtt gcggatcacc tatggccaag gtagtggtac agcagtttac 350

aacaacaaca tgtacgtcaa catgtacaac accgggnata ttgccagagt 400

taacctgacc 410

<210> 69

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 69

agctgtggtc atgggtggtgt ggtg 24

<210> 70

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 70

ctaccttggc cataggtgat ccgc 24

<210> 71

<211> 42

<212> DNA

<213> Artificial Sequence

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<223> Synthetic oligonucleotide probe

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catcagcaaa ccgtctgtgg ttcagctcaa ctggagaggg tt 42

<210> 72

<211> 3127

<212> DNA

<213> Homo sapiens

<400> 72

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tggggctgtg ctccatggcg agctggatac catgtttgtg tggaagtgcc 150
ccgtgtttgc tatgccgatg ctgtcctagt ggaaacaact ccaactgtaac 200
tagattgatc tatgcacttt tcttgcttgt tggagtatgt gtagcttgtg 250
taatgttgat accaggaatg gaagaacaac tgaataagat tcctggattt 300
tgtgagaatg agaaagggtg tgtcccttgt aacatttttg ttggctataa 350
agctgtatat cgtttgtgct ttggtttggc tatgttctat cttcttctct 400
ctttactaat gatcaaagtg aagagtagca gtgacctag agctgcagtg 450
cacaatggat tttggttctt taaatttgct gcagcaattg caattattat 500
tggggcattc ttcattccag aaggaaactt tacaactgtg tggttttatg 550
taggcattggc aggtgccttt tgtttcatcc tcatacaact agtcttactt 600
attgattttg cacattcatg gaatgaatcg tgggttgaaa aaatggaaga 650
agggaaactc agatgttggt atgcagcctt gttatcagct acagctctga 700
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catccagcca gttgttcaga aaacaaggcg ttcacagtg tcaacatgct 800
cctctgcgtt ggtgcttctg taatgtctat actgccaaaa atccaagaat 850
cacaaccaag atctggtttg ttacagtctt cagtaattac agtctacaca 900
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ttggacactc gtggcaccac ttgttcttac aaatcgtgat tttgactgag 1450
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 cggactataa ttgaataacg agtaaataat cttacttggg tagagatggc 2050
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 gtgaatggaa tataacaatt cagcttaatt ccccaacott attctgtgtg 3050
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[illegible]

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Ser Gly Asn Asn Ser Thr Val Thr Arg Leu Ile Tyr Ala Leu Phe
35 40 45

Met Glu Glu Gln Leu Asn Lys Ile Pro Gly Phe Cys Glu Asn Glu
65 70 75

Tyr Arg Leu Cys Phe Gly Leu Ala Met Phe Tyr Leu Leu Leu Ser
95 100 105

Val His Asn Gly Phe Trp Phe Phe Lys Phe Ala Ala Ala Ile Ala
125 130 135

Ile Ile Ile Gly Ala Phe Phe Ile Pro Glu Gly Thr Phe Thr Thr
140 145 150

Val Trp Phe Tyr Val Gly Met Ala Gly Ala Phe Cys Phe Ile Leu
155 160 165

Ile Gln Leu Val Leu Leu Ile Asp Phe Ala His Ser Trp Asn Glu
170 175 180

Ser Trp Val Glu Lys Met Glu Glu Gly Asn Ser Arg Cys Trp Tyr
185 190 195

Ala Ala Leu Leu Ser Ala Thr Ala Leu Asn Tyr Leu Leu Ser Leu
200 205 210

Val Ala Ile Val Leu Phe Phe Val Tyr Tyr Thr His Pro Ala Ser
215 220 225

Cys Ser Glu Asn Lys Ala Phe Ile Ser Val Asn Met Leu Leu Cys
230 235 240

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gly | Ala | Ser | Val | Met | Ser | Ile | Leu | Pro | Lys | Ile | Gln | Glu | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 |

Gln Pro Arg Ser Gly Leu Leu Gln Ser Ser Val Ile Thr Val Tyr
260 265 270

Thr Met Tyr Leu Thr Trp Ser Ala Met Thr Asn Glu Pro Glu Thr
275 280 285

| | | | |
|---|-----|-----|-----|
| Asn Cys Asn Pro Ser Leu Leu Ser Ile Ile Gly Tyr Asn Thr Thr | 290 | 295 | 300 |
| Ser Thr Val Pro Lys Glu Gly Gln Ser Val Gln Trp Trp His Ala | 305 | 310 | 315 |
| Gln Gly Ile Ile Gly Leu Ile Leu Phe Leu Leu Cys Val Phe Tyr | 320 | 325 | 330 |
| Ser Ser Ile Arg Thr Ser Asn Asn Ser Gln Val Asn Lys Leu Thr | 335 | 340 | 345 |
| Leu Thr Ser Asp Glu Ser Thr Leu Ile Glu Asp Gly Gly Ala Arg | 350 | 355 | 360 |
| Ser Asp Gly Ser Leu Glu Asp Gly Asp Asp Val His Arg Ala Val | 365 | 370 | 375 |
| Asp Asn Glu Arg Asp Gly Val Thr Tyr Ser Tyr Ser Phe Phe His | 380 | 385 | 390 |
| Phe Met Leu Phe Leu Ala Ser Leu Tyr Ile Met Met Thr Leu Thr | 395 | 400 | 405 |
| Asn Trp Ser Arg Tyr Glu Pro Ser Arg Glu Met Lys Ser Gln Trp | 410 | 415 | 420 |
| Thr Ala Val Trp Val Lys Ile Ser Ser Ser Trp Ile Gly Ile Val | 425 | 430 | 435 |
| Leu Tyr Val Trp Thr Leu Val Ala Pro Leu Val Leu Thr Asn Arg | 440 | 445 | 450 |
| Asp Phe Asp | | | |

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 <211> 480
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 48, 163
 <223> unknown base

<400> 74
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 ataccatgtt tgtgtggaag tgccccgtgt ttgctatgcc gatgctgtcc 150
 tagtggaac aantccactg taactagatt gatctatgca cttttcttgc 200
 ttgttgagat atgtgtagct tgtgtaatgt tgataccagg aatggaagaa 250
 caactgaata agattcctgg attttgtgag aatgagaaag gtgttgctcc 300
 ttgtaacatt ttggttggtg ataaagctgt atatcgtttg tgctttgggt 350
 tggctatgtt ctatcttctt ctctctttac taatgatcaa agtgaagagt 400

agcagtgatc ctagagctgc agtgcacaat ggattttggt tottttaaatt 450

tgctgcagca attgcaatta ttattggggc 480

<210> 75

<211> 438

<212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> 32, 65, 92, 121, 142, 154, 170, 293, 315, 323

<223> unknown base

<400> 75

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tgctgtccta gtggaacaa ntccactgta attagattga tntatgcact 150

tttnttgctt gttggagtan gtgtagcttg tgtaatgttg ataccaggaa 200

tggaagaaca actgaataag attcctggat tttgtgagaa tgagaaaggt 250

gttgtccctt gtaacatttt gggtggctat aaagctgtat atngtttgtg 300

ctttggtttg gctangttct atnttcttct ctctttacta atgatcaaag 350

tgaagagtag cagtgatcct agagctgcag tgcacaatgg attttggttt 400

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<213> Homo sapiens

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<400> 76

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gtttgtgttg aagtgccccg tgtttgctat gccgatgctg tcctagtgga 150

aacaactcca ctgtaactag attgatctat gcacttttct tgcttggttg 200

agtatgtgta gcttgtgtaa tgttgatacc aggaatggaa gaacaactga 250

ataagattcc tggattttgt gagaatgaga aagggtgttg cccttgtaac 300

attttggttg gctataaagc tgtatatcgt ttgtgctttg gtttggtctat 350

gttctatctt cttctctctt tactaatgat caaagtgaag agtagcagtg 400

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gcaattgcaa ttattatttg ggc 473

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<222> 21, 111
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<400> 77
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gaaagggtgtt gtccccttgt aacatttttg gttggctata aagctgtata 200
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ttttggttct ttaaatttgc tgcagcaatt gcaattatta ttggggcatt 350
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cagggtgcctt ttgtttcatc ctcatacaac tagtcttact tattgatttt 450
gcacattcat ggaatgaatc gtggggtgaa aaaatggaag aagggaactc 500
gagatggttg tatgcagcct tggtatcagc tacagctctg aattatctgc 550
tgtctttagt tgctatcgtc ctgttctttg tctactacac tcatccagcc 600
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tggtgcttct gtaatg 666

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<220>
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<400> 78
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<210> 79
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<220>
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<400> 79
gtcaacatgc tcctctgc 18

<210> 80
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<212> DNA
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<220>
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<400> 80
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<210> 81
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<220>
<223> Synthetic oligonucleotide probe

<400> 81
gagcatgccca ccactggact gac 23

<210> 82
<211> 54
<212> DNA
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<220>
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gcac 54

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 <212> PRT
 <213> Homo sapiens

<400> 84
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 35 40 45
 Ile Ile Leu Val Leu Thr Asp Asp Gln Asp Val Glu Leu Gly Ser
 50 55 60
 Met Gln Val Met Asn Lys Thr Arg Arg Ile Met Glu Gln Gly Gly
 65 70 75
 Ala His Phe Ile Asn Ala Phe Val Thr Thr Pro Met Cys Cys Pro
 80 85 90
 Ser Arg Ser Ser Ile Leu Thr Gly Lys Tyr Val His Asn His Asn
 95 100 105
 Thr Tyr Thr Asn Asn Glu Asn Cys Ser Ser Pro Ser Trp Gln Ala
 110 115 120
 Gln His Glu Ser Arg Thr Phe Ala Val Tyr Leu Asn Ser Thr Gly
 125 130 135
 Tyr Arg Thr Ala Phe Phe Gly Lys Tyr Leu Asn Glu Tyr Asn Gly
 140 145 150
 Ser Tyr Val Pro Pro Gly Trp Lys Glu Trp Val Gly Leu Leu Lys
 155 160 165
 Asn Ser Arg Phe Tyr Asn Tyr Thr Leu Cys Arg Asn Gly Val Lys
 170 175 180
 Glu Lys His Gly Ser Asp Tyr Ser Lys Asp Tyr Leu Thr Asp Leu
 185 190 195
 Ile Thr Asn Asp Ser Val Ser Phe Phe Arg Thr Ser Lys Lys Met
 200 205 210
 Tyr Pro His Arg Pro Val Leu Met Val Ile Ser His Ala Ala Pro
 215 220 225
 His Gly Pro Glu Asp Ser Ala Pro Gln Tyr Ser Arg Leu Phe Pro
 230 235 240
 Asn Ala Ser Gln His Ile Thr Pro Ser Tyr Asn Tyr Ala Pro Asn
 245 250 255

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Pro | Asp | Lys | His | Trp | Ile | Met | Arg | Tyr | Thr | Gly | Pro | Met | Lys | Pro | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Ile | His | Met | Glu | Phe | Thr | Asn | Met | Leu | Gln | Arg | Lys | Arg | Leu | Gln | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Thr | Leu | Met | Ser | Val | Asp | Asp | Ser | Met | Glu | Thr | Ile | Tyr | Asn | Met | |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Leu | Val | Glu | Thr | Gly | Glu | Leu | Asp | Asn | Thr | Tyr | Ile | Val | Tyr | Thr | |
| | | | | 305 | | | | | 310 | | | | | 315 | |
| Ala | Asp | His | Gly | Tyr | His | Ile | Gly | Gln | Phe | Gly | Leu | Val | Lys | Gly | |
| | | | | 320 | | | | | 325 | | | | | 330 | |
| Lys | Ser | Met | Pro | Tyr | Glu | Phe | Asp | Ile | Arg | Val | Pro | Phe | Tyr | Val | |
| | | | | 335 | | | | | 340 | | | | | 345 | |
| Arg | Gly | Pro | Asn | Val | Glu | Ala | Gly | Cys | Leu | Asn | Pro | His | Ile | Val | |
| | | | | 350 | | | | | 355 | | | | | 360 | |
| Leu | Asn | Ile | Asp | Leu | Ala | Pro | Thr | Ile | Leu | Asp | Ile | Ala | Gly | Leu | |
| | | | | 365 | | | | | 370 | | | | | 375 | |
| Asp | Ile | Pro | Ala | Asp | Met | Asp | Gly | Lys | Ser | Ile | Leu | Lys | Leu | Leu | |
| | | | | 380 | | | | | 385 | | | | | 390 | |
| Asp | Thr | Glu | Arg | Pro | Val | Asn | Arg | Phe | His | Leu | Lys | Lys | Lys | Met | |
| | | | | 395 | | | | | 400 | | | | | 405 | |
| Arg | Val | Trp | Arg | Asp | Ser | Phe | Leu | Val | Glu | Arg | Gly | Lys | Leu | Leu | |
| | | | | 410 | | | | | 415 | | | | | 420 | |
| His | Lys | Arg | Asp | Asn | Asp | Lys | Val | Asp | Ala | Gln | Glu | Glu | Asn | Phe | |
| | | | | 425 | | | | | 430 | | | | | 435 | |
| Leu | Pro | Lys | Tyr | Gln | Arg | Val | Lys | Asp | Leu | Cys | Gln | Arg | Ala | Glu | |
| | | | | 440 | | | | | 445 | | | | | 450 | |
| Tyr | Gln | Thr | Ala | Cys | Glu | Gln | Leu | Gly | Gln | Lys | Trp | Gln | Cys | Val | |
| | | | | 455 | | | | | 460 | | | | | 465 | |
| Glu | Asp | Ala | Thr | Gly | Lys | Leu | Lys | Leu | His | Lys | Cys | Lys | Gly | Pro | |
| | | | | 470 | | | | | 475 | | | | | 480 | |
| Met | Arg | Leu | Gly | Gly | Ser | Arg | Ala | Leu | Ser | Asn | Leu | Val | Pro | Lys | |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Tyr | Tyr | Gly | Gln | Gly | Ser | Glu | Ala | Cys | Thr | Cys | Asp | Ser | Gly | Asp | |
| | | | | 500 | | | | | 505 | | | | | 510 | |
| Tyr | Lys | Leu | Ser | Leu | Ala | Gly | Arg | Arg | Lys | Lys | Leu | Phe | Lys | Lys | |
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| Lys | Tyr | Lys | Ala | Ser | Tyr | Val | Arg | Ser | Arg | Ser | Ile | Arg | Ser | Val | |
| | | | | 530 | | | | | 535 | | | | | 540 | |
| Ala | Ile | Glu | Val | Asp | Gly | Arg | Val | Tyr | His | Val | Gly | Leu | Gly | Asp | |
| | | | | 545 | | | | | 550 | | | | | 555 | |
| Ala | Ala | Gln | Pro | Arg | Asn | Leu | Thr | Lys | Arg | His | Trp | Pro | Gly | Ala | |
| | | | | 560 | | | | | 565 | | | | | 570 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Pro | Glu | Asp | Gln | Asp | Asp | Lys | Asp | Gly | Gly | Asp | Phe | Ser | Gly | Thr | |
| | | | | 575 | | | | | 580 | | | | | 585 | |
| Gly | Gly | Leu | Pro | Asp | Tyr | Ser | Ala | Ala | Asn | Pro | Ile | Lys | Val | Thr | |
| | | | | 590 | | | | | 595 | | | | | 600 | |
| His | Arg | Cys | Tyr | Ile | Leu | Glu | Asn | Asp | Thr | Val | Gln | Cys | Asp | Leu | |
| | | | | 605 | | | | | 610 | | | | | 615 | |
| Asp | Leu | Tyr | Lys | Ser | Leu | Gln | Ala | Trp | Lys | Asp | His | Lys | Leu | His | |
| | | | | 620 | | | | | 625 | | | | | 630 | |
| Ile | Asp | His | Glu | Ile | Glu | Thr | Leu | Gln | Asn | Lys | Ile | Lys | Asn | Leu | |
| | | | | 635 | | | | | 640 | | | | | 645 | |
| Arg | Glu | Val | Arg | Gly | His | Leu | Lys | Lys | Lys | Arg | Pro | Glu | Glu | Cys | |
| | | | | 650 | | | | | 655 | | | | | 660 | |
| Asp | Cys | His | Lys | Ile | Ser | Tyr | His | Thr | Gln | His | Lys | Gly | Arg | Leu | |
| | | | | 665 | | | | | 670 | | | | | 675 | |
| Lys | His | Arg | Gly | Ser | Ser | Leu | His | Pro | Phe | Arg | Lys | Gly | Leu | Gln | |
| | | | | 680 | | | | | 685 | | | | | 690 | |
| Glu | Lys | Asp | Lys | Val | Trp | Leu | Leu | Arg | Glu | Gln | Lys | Arg | Lys | Lys | |
| | | | | 695 | | | | | 700 | | | | | 705 | |
| Lys | Leu | Arg | Lys | Leu | Leu | Lys | Arg | Leu | Gln | Asn | Asn | Asp | Thr | Cys | |
| | | | | 710 | | | | | 715 | | | | | 720 | |
| Ser | Met | Pro | Gly | Leu | Thr | Cys | Phe | Thr | His | Asp | Asn | Gln | His | Trp | |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Gln | Thr | Ala | Pro | Phe | Trp | Thr | Leu | Gly | Pro | Phe | Cys | Ala | Cys | Thr | |
| | | | | 740 | | | | | 745 | | | | | 750 | |
| Ser | Ala | Asn | Asn | Asn | Thr | Tyr | Trp | Cys | Met | Arg | Thr | Ile | Asn | Glu | |
| | | | | 755 | | | | | 760 | | | | | 765 | |
| Thr | His | Asn | Phe | Leu | Phe | Cys | Glu | Phe | Ala | Thr | Gly | Phe | Leu | Glu | |
| | | | | 770 | | | | | 775 | | | | | 780 | |
| Tyr | Phe | Asp | Leu | Asn | Thr | Asp | Pro | Tyr | Gln | Leu | Met | Asn | Ala | Val | |
| | | | | 785 | | | | | 790 | | | | | 795 | |
| Asn | Thr | Leu | Asp | Arg | Asp | Val | Leu | Asn | Gln | Leu | His | Val | Gln | Leu | |
| | | | | 800 | | | | | 805 | | | | | 810 | |
| Met | Glu | Leu | Arg | Ser | Cys | Lys | Gly | Tyr | Lys | Gln | Cys | Asn | Pro | Arg | |
| | | | | 815 | | | | | 820 | | | | | 825 | |
| Thr | Arg | Asn | Met | Asp | Leu | Asp | Gly | Gly | Ser | Tyr | Glu | Gln | Tyr | Arg | |
| | | | | 830 | | | | | 835 | | | | | 840 | |
| Gln | Phe | Gln | Arg | Arg | Lys | Trp | Pro | Glu | Met | Lys | Arg | Pro | Ser | Ser | |
| | | | | 845 | | | | | 850 | | | | | 855 | |
| Lys | Ser | Leu | Gly | Gln | Leu | Trp | Glu | Gly | Trp | Glu | Gly | | | | |
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<210> 86

<211> 18

<212> DNA

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<213> Artificial Sequence

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<223> Synthetic oligonucleotide probe

<400> 87

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<223> Synthetic oligonucleotide probe

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cactgggaca actgtggg 18

<210> 89

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<213> Artificial Sequence

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cagaggcaac gtggagag 18

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<211> 21

<212> DNA

<213> Artificial Sequence

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<223> Synthetic oligonucleotide probe

<400> 90

aagtattgtc atacagtgtt c 21

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<212> DNA
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<220>
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<220>
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tcataccaac tgctgggtcat tggc 24

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 aaaaaaaaaa aaaaaaaaaa a 971

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 <211> 115
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 <213> Homo sapiens

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 Cys Leu Phe His Gly Arg Gln Asp Cys Asp Val Glu Arg Asn Arg
 35 40 45
 Thr Ala Ala Gly Gly Asn Arg Val Arg Arg Ala Gln Pro Trp Pro
 50 55 60
 Phe Arg Arg Arg Gly His Leu Gly Ile Phe His His His Arg His
 65 70 75
 Pro Gly His Val Ser His Val Pro Asn Val Gly Leu His His His
 80 85 90
 His His Pro Arg His Thr Pro His His Leu His His His His His
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| Met | Ser | Asp | Leu | Leu | Leu | Gly | Leu | Ile | Gly | Gly | Leu | Thr | Leu | |
| 1 | | | | 5 | | | | 10 | | | | | 15 | |
| Leu | Leu | Leu | Leu | Thr | Leu | Leu | Ala | Phe | Ala | Gly | Tyr | Ser | Gly | Leu |
| | | | | 20 | | | | 25 | | | | | | 30 |
| Leu | Ala | Gly | Val | Glu | Val | Ser | Ala | Gly | Ser | Pro | Pro | Ile | Arg | Asn |
| | | | | 35 | | | | 40 | | | | | | 45 |
| Val | Thr | Val | Ala | Tyr | Lys | Phe | His | Met | Gly | Leu | Tyr | Gly | Glu | Thr |
| | | | | 50 | | | | 55 | | | | | | 60 |
| Gly | Arg | Leu | Phe | Thr | Glu | Ser | Cys | Ser | Ile | Ser | Pro | Lys | Leu | Arg |
| | | | | 65 | | | | 70 | | | | | | 75 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ser | Ile | Ala | Val | Tyr | Tyr | Asp | Asn | Pro | His | Met | Val | Pro | Pro | Asp | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Lys | Cys | Arg | Cys | Ala | Val | Gly | Ser | Ile | Leu | Ser | Glu | Gly | Glu | Glu | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Ser | Pro | Ser | Pro | Glu | Leu | Ile | Asp | Leu | Tyr | Gln | Lys | Phe | Gly | Phe | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Lys | Val | Phe | Ser | Phe | Pro | Ala | Pro | Ser | His | Val | Val | Thr | Ala | Thr | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Phe | Pro | Tyr | Thr | Thr | Ile | Leu | Ser | Ile | Trp | Leu | Ala | Thr | Arg | Arg | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Val | His | Pro | Ala | Leu | Asp | Thr | Tyr | Ile | Lys | Glu | Arg | Lys | Leu | Cys | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Ala | Tyr | Pro | Arg | Leu | Glu | Ile | Tyr | Gln | Glu | Asp | Gln | Ile | His | Phe | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Met | Cys | Pro | Leu | Ala | Arg | Gln | Gly | Asp | Phe | Tyr | Val | Pro | Glu | Met | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Lys | Glu | Thr | Glu | Trp | Lys | Trp | Arg | Gly | Leu | Val | Glu | Ala | Ile | Asp | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Thr | Gln | Val | Asp | Gly | Thr | Gly | Ala | Asp | Thr | Met | Ser | Asp | Thr | Ser | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Ser | Val | Ser | Leu | Glu | Val | Ser | Pro | Gly | Ser | Arg | Glu | Thr | Ser | Ala | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Ala | Thr | Leu | Ser | Pro | Gly | Ala | Ser | Ser | Arg | Gly | Trp | Asp | Asp | Gly | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asp | Thr | Arg | Ser | Glu | His | Ser | Tyr | Ser | Glu | Ser | Gly | Ala | Ser | Gly | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Ser | Ser | Phe | Glu | Glu | Leu | Asp | Leu | Glu | Gly | Glu | Gly | Pro | Leu | Gly | |
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<211> 201

<212> PRT

<213> Homo sapiens

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| Met | Thr | Leu | Arg | Pro | Ser | Leu | Leu | Pro | Leu | His | Leu | Leu | Leu | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Leu | Leu | Leu | Ser | Ala | Ala | Val | Cys | Arg | Ala | Glu | Ala | Gly | Leu | Glu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Thr | Glu | Ser | Pro | Val | Arg | Thr | Leu | Gln | Val | Glu | Thr | Leu | Val | Glu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Pro | Pro | Glu | Pro | Cys | Ala | Glu | Pro | Ala | Ala | Phe | Gly | Asp | Thr | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| His | Ile | His | Tyr | Thr | Gly | Ser | Leu | Val | Asp | Gly | Arg | Ile | Ile | Asp |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Thr | Ser | Leu | Thr | Arg | Asp | Pro | Leu | Val | Ile | Glu | Leu | Gly | Gln | Lys |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Gln | Val | Ile | Pro | Gly | Leu | Glu | Gln | Ser | Leu | Leu | Asp | Met | Cys | Val |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Gly | Glu | Lys | Arg | Arg | Ala | Ile | Ile | Pro | Ser | His | Leu | Ala | Tyr | Gly |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Lys | Arg | Gly | Phe | Pro | Pro | Ser | Val | Pro | Ala | Asp | Ala | Val | Val | Gln |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Tyr | Asp | Val | Glu | Leu | Ile | Ala | Leu | Ile | Arg | Ala | Asn | Tyr | Trp | Leu |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Lys | Leu | Val | Lys | Gly | Ile | Leu | Pro | Leu | Val | Gly | Met | Ala | Met | Val |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Pro | Ala | Leu | Leu | Gly | Leu | Ile | Gly | Tyr | His | Leu | Tyr | Arg | Lys | Ala |
| | | | | 170 | | | | | 175 | | | | | 180 |
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185

190

195

Asn Lys Ser Lys Lys Lys
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<211> 705

<212> DNA

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<211> 543

<212> DNA

<213> Homo sapiens

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tactggctaa agctggtgaa gggcattttg cctctggtag ggatggccat 400

ggtgccagcc ctcctgggcc tcattgggta tcacctatac agaaaggcca 450
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 gagggcttga gatgctcaga atgcattgac tggggggaaa agcgcaatac 200
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Leu Phe Phe Thr Gly Trp Trp Ile Ile Ile Asp Ala Ala Val Ile
          35             40             45

Tyr Pro Thr Met Lys Asp Phe Asn His Ser Tyr His Ala Cys Gly
          50             55             60

Val Ile Ala Thr Ile Ala Phe Leu Met Ile Asn Ala Val Ser Asn
          65             70             75

Gly Gln Val Arg Gly Asp Ser Tyr Ser Glu Gly Cys Leu Gly Gln
          80             85             90

Thr Gly Ala Arg Ile Trp Leu Phe Val Gly Phe Met Leu Ala Phe
          95             100            105

Gly Ser Leu Ile Ala Ser Met Trp Ile Leu Phe Gly Gly Tyr Val
          110            115            120

Ala Lys Glu Lys Asp Ile Val Tyr Pro Gly Ile Ala Val Phe Phe
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Gln Asn Ala Phe Ile Phe Phe Gly Gly Leu Val Phe Lys Phe Gly
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Arg Thr Glu Asp Leu Trp Gln
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 <212> DNA
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 <222> 26, 38, 81, 115, 207, 329, 380, 446, 449
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<222> 52, 67, 70, 78, 105, 144, 150, 209, 266, 268, 282, 310, 331, 356
<223> unknown base

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| Year | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
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| 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 | |

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 35 40 45
 Thr Asp Lys Glu Ala Arg Lys Lys Val Leu Lys Gln Ala Phe Ser
 50 55 60
 Ala Asn Gln Val Pro Glu Lys Leu Asp Val Val Val Ile Gly Ser
 65 70 75
 Gly Phe Gly Gly Leu Ala Ala Ala Ala Ile Leu Ala Lys Ala Gly
 80 85 90
 Lys Arg Val Leu Val Leu Glu Gln His Thr Lys Ala Gly Gly Cys
 95 100 105

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | His | Thr | Phe | Gly | Lys | Asn | Gly | Leu | Glu | Phe | Asp | Thr | Gly | Ile | 110 | 115 | 120 |
| His | Tyr | Ile | Gly | Arg | Met | Glu | Glu | Gly | Ser | Ile | Gly | Arg | Phe | Ile | 125 | 130 | 135 |
| Leu | Asp | Gln | Ile | Thr | Glu | Gly | Gln | Leu | Asp | Trp | Ala | Pro | Leu | Ser | 140 | 145 | 150 |
| Ser | Pro | Phe | Asp | Ile | Met | Val | Leu | Glu | Gly | Pro | Asn | Gly | Arg | Lys | 155 | 160 | 165 |
| Glu | Tyr | Pro | Met | Tyr | Ser | Gly | Glu | Lys | Ala | Tyr | Ile | Gln | Gly | Leu | 170 | 175 | 180 |
| Lys | Glu | Lys | Phe | Pro | Gln | Glu | Glu | Ala | Ile | Ile | Asp | Lys | Tyr | Ile | 185 | 190 | 195 |
| Lys | Leu | Val | Lys | Val | Val | Ser | Ser | Gly | Ala | Pro | His | Ala | Ile | Leu | 200 | 205 | 210 |
| Leu | Lys | Phe | Leu | Pro | Leu | Pro | Val | Val | Gln | Leu | Leu | Asp | Arg | Cys | 215 | 220 | 225 |
| Gly | Leu | Leu | Thr | Arg | Phe | Ser | Pro | Phe | Leu | Gln | Ala | Ser | Thr | Gln | 230 | 235 | 240 |
| Ser | Leu | Ala | Glu | Val | Leu | Gln | Gln | Leu | Gly | Ala | Ser | Ser | Glu | Leu | 245 | 250 | 255 |
| Gln | Ala | Val | Leu | Ser | Tyr | Ile | Phe | Pro | Thr | Tyr | Gly | Val | Thr | Pro | 260 | 265 | 270 |
| Asn | His | Ser | Ala | Phe | Ser | Met | His | Ala | Leu | Leu | Val | Asn | His | Tyr | 275 | 280 | 285 |
| Met | Lys | Gly | Gly | Phe | Tyr | Pro | Arg | Gly | Gly | Ser | Ser | Glu | Ile | Ala | 290 | 295 | 300 |
| Phe | His | Thr | Ile | Pro | Val | Ile | Gln | Arg | Ala | Gly | Gly | Ala | Val | Leu | 305 | 310 | 315 |
| Thr | Lys | Ala | Thr | Val | Gln | Ser | Val | Leu | Leu | Asp | Ser | Ala | Gly | Lys | 320 | 325 | 330 |
| Ala | Cys | Gly | Val | Ser | Val | Lys | Lys | Gly | His | Glu | Leu | Val | Asn | Ile | 335 | 340 | 345 |
| Tyr | Cys | Pro | Ile | Val | Val | Ser | Asn | Ala | Gly | Leu | Phe | Asn | Thr | Tyr | 350 | 355 | 360 |
| Glu | His | Leu | Leu | Pro | Gly | Asn | Ala | Arg | Cys | Leu | Pro | Gly | Val | Lys | 365 | 370 | 375 |
| Gln | Gln | Leu | Gly | Thr | Val | Arg | Pro | Gly | Leu | Gly | Met | Thr | Ser | Val | 380 | 385 | 390 |
| Phe | Ile | Cys | Leu | Arg | Gly | Thr | Lys | Glu | Asp | Leu | His | Leu | Pro | Ser | 395 | 400 | 405 |
| Thr | Asn | Tyr | Tyr | Val | Tyr | Tyr | Asp | Thr | Asp | Met | Asp | Gln | Ala | Met | 410 | 415 | 420 |

| | | | |
|-----------------|---------------------|---------------------|-----|
| Glu Arg Tyr Val | Ser Met Pro Arg Glu | Glu Ala Ala Glu His | Ile |
| | 425 | 430 | 435 |
| Pro Leu Leu Phe | Phe Ala Phe Pro Ser | Ala Lys Asp Pro Thr | Trp |
| | 440 | 445 | 450 |
| Glu Asp Arg Phe | Pro Gly Arg Ser Thr | Met Ile Met Leu Ile | Pro |
| | 455 | 460 | 465 |
| Thr Ala Tyr Glu | Trp Phe Glu Glu Trp | Gln Ala Glu Leu Lys | Gly |
| | 470 | 475 | 480 |
| Lys Arg Gly Ser | Asp Tyr Glu Thr Phe | Lys Asn Ser Phe Val | Glu |
| | 485 | 490 | 495 |
| Ala Ser Met Ser | Val Val Leu Lys Leu | Phe Pro Gln Leu Glu | Gly |
| | 500 | 505 | 510 |
| Lys Val Glu Ser | Val Thr Ala Gly Ser | Pro Leu Thr Asn Gln | Phe |
| | 515 | 520 | 525 |
| Tyr Leu Ala Ala | Pro Arg Gly Ala Cys | Tyr Gly Ala Asp His | Asp |
| | 530 | 535 | 540 |
| Leu Gly Arg Leu | His Pro Cys Val Met | Ala Ser Leu Arg Ala | Gln |
| | 545 | 550 | 555 |
| Ser Pro Ile Pro | Asn Leu Tyr Leu Thr | Gly Gln Asp Ile Phe | Thr |
| | 560 | 565 | 570 |
| Cys Gly Leu Val | Gly Ala Leu Gln Gly | Ala Leu Leu Cys Ser | Ser |
| | 575 | 580 | 585 |
| Ala Ile Leu Lys | Arg Asn Leu Tyr Ser | Asp Leu Lys Asn Leu | Asp |
| | 590 | 595 | 600 |
| Ser Arg Ile Arg | Ala Gln Lys Lys Lys | Asn | |
| | 605 | 610 | |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ser | Leu | Asp | Ser | Lys | Thr | Thr | Leu | Thr | Ser | Asp | Glu | Ser | Val | 35 | 40 | 45 |
| Lys | Asp | His | Thr | Thr | Ala | Gly | Arg | Val | Val | Ala | Gly | Gln | Ile | Phe | 50 | 55 | 60 |
| Leu | Asp | Ser | Glu | Glu | Ser | Glu | Leu | Glu | Ser | Ser | Ile | Gln | Glu | Glu | 65 | 70 | 75 |
| Glu | Asp | Ser | Leu | Lys | Ser | Gln | Glu | Gly | Glu | Ser | Val | Thr | Glu | Asp | 80 | 85 | 90 |
| Ile | Ser | Phe | Leu | Glu | Ser | Pro | Asn | Pro | Glu | Asn | Lys | Asp | Tyr | Glu | 95 | 100 | 105 |
| Glu | Pro | Lys | Lys | Val | Arg | Lys | Pro | Ala | Leu | Thr | Ala | Ile | Glu | Gly | 110 | 115 | 120 |
| Thr | Ala | His | Gly | Glu | Pro | Cys | His | Phe | Pro | Phe | Leu | Phe | Leu | Asp | 125 | 130 | 135 |
| Lys | Glu | Tyr | Asp | Glu | Cys | Thr | Ser | Asp | Gly | Arg | Glu | Asp | Gly | Arg | 140 | 145 | 150 |
| Leu | Trp | Cys | Ala | Thr | Thr | Tyr | Asp | Tyr | Lys | Ala | Asp | Glu | Lys | Trp | 155 | 160 | 165 |
| Gly | Phe | Cys | Glu | Thr | Glu | Glu | Glu | Ala | Ala | Lys | Arg | Arg | Gln | Met | 170 | 175 | 180 |
| Gln | Glu | Ala | Glu | Met | Met | Tyr | Gln | Thr | Gly | Met | Lys | Ile | Leu | Asn | 185 | 190 | 195 |
| Gly | Ser | Asn | Lys | Lys | Ser | Gln | Lys | Arg | Glu | Ala | Tyr | Arg | Tyr | Leu | 200 | 205 | 210 |
| Gln | Lys | Ala | Ala | Ser | Met | Asn | His | Thr | Lys | Ala | Leu | Glu | Arg | Val | 215 | 220 | 225 |
| Ser | Tyr | Ala | Leu | Leu | Phe | Gly | Asp | Tyr | Leu | Pro | Gln | Asn | Ile | Gln | 230 | 235 | 240 |
| Ala | Ala | Arg | Glu | Met | Phe | Glu | Lys | Leu | Thr | Glu | Glu | Gly | Ser | Pro | 245 | 250 | 255 |
| Lys | Gly | Gln | Thr | Ala | Leu | Gly | Phe | Leu | Tyr | Ala | Ser | Gly | Leu | Gly | 260 | 265 | 270 |
| Val | Asn | Ser | Ser | Gln | Ala | Lys | Ala | Leu | Val | Tyr | Tyr | Thr | Phe | Gly | 275 | 280 | 285 |
| Ala | Leu | Gly | Gly | Asn | Leu | Ile | Ala | His | Met | Val | Leu | Val | Ser | Arg | 290 | 295 | 300 |

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 35 40 45
 His Val Thr Ile Arg Asp Tyr Gly Val Ser Trp Tyr Gln Gln Arg
 50 55 60
 Ala Gly Ser Ala Pro Arg Tyr Leu Leu Tyr Tyr Arg Ser Glu Glu
 65 70 75
 Asp His His Arg Pro Ala Asp Ile Pro Asp Arg Phe Ser Ala Ala
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 Lys Asp Glu Ala His Asn Ala Cys Val Leu Thr Ile Ser Pro Val
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 Gln Pro Glu Asp Asp Ala Asp Tyr Tyr Cys Ser Val Gly Tyr Gly
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<400> 118

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 Thr Val Arg Leu Gln Cys Pro Val Glu Gly Asp Pro Pro Pro Leu
 50 55 60
 Thr Met Trp Thr Lys Asp Gly Arg Thr Ile His Ser Gly Trp Ser
 65 70 75
 Arg Phe Arg Val Leu Pro Gln Gly Leu Lys Val Lys Gln Val Glu
 80 85 90
 Arg Glu Asp Ala Gly Val Tyr Val Cys Lys Ala Thr Asn Gly Phe
 95 100 105
 Gly Ser Leu Ser Val Asn Tyr Thr Leu Val Val Leu Asp Asp Ile
 110 115 120
 Ser Pro Gly Lys Glu Ser Leu Gly Pro Asp Ser Ser Ser Gly Gly
 125 130 135
 Gln Glu Asp Pro Ala Ser Gln Gln Trp Ala Arg Pro Arg Phe Thr
 140 145 150
 Gln Pro Ser Lys Met Arg Arg Arg Val Ile Ala Arg Pro Val Gly
 155 160 165
 Ser Ser Val Arg Leu Lys Cys Val Ala Ser Gly His Pro Arg Pro
 170 175 180
 Asp Ile Thr Trp Met Lys Asp Asp Gln Ala Leu Thr Arg Pro Glu
 185 190 195
 Ala Ala Glu Pro Arg Lys Lys Lys Trp Thr Leu Ser Leu Lys Asn
 200 205 210
 Leu Arg Pro Glu Asp Ser Gly Lys Tyr Thr Cys Arg Val Ser Asn
 215 220 225
 Arg Ala Gly Ala Ile Asn Ala Thr Tyr Lys Val Asp Val Ile Gln
 230 235 240

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Thr | Arg | Ser | Lys | Pro | Val | Leu | Thr | Gly | Thr | His | Pro | Val | Asn |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Thr | Thr | Val | Asp | Phe | Gly | Gly | Thr | Thr | Ser | Phe | Gln | Cys | Lys | Val |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Arg | Ser | Asp | Val | Lys | Pro | Val | Ile | Gln | Trp | Leu | Lys | Arg | Val | Glu |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Tyr | Gly | Ala | Glu | Gly | Arg | His | Asn | Ser | Thr | Ile | Asp | Val | Gly | Gly |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Gln | Lys | Phe | Val | Val | Leu | Pro | Thr | Gly | Asp | Val | Trp | Ser | Arg | Pro |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Asp | Gly | Ser | Tyr | Leu | Asn | Lys | Leu | Leu | Ile | Thr | Arg | Ala | Arg | Gln |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Asp | Asp | Ala | Gly | Met | Tyr | Ile | Cys | Leu | Gly | Ala | Asn | Thr | Met | Gly |
| | | | | 335 | | | | | 340 | | | | | 345 |
| Tyr | Ser | Phe | Arg | Ser | Ala | Phe | Leu | Thr | Val | Leu | Pro | Asp | Pro | Lys |
| | | | | 350 | | | | | 355 | | | | | 360 |
| Pro | Pro | Gly | Pro | Pro | Val | Ala | Ser | Ser | Ser | Ser | Ala | Thr | Ser | Leu |
| | | | | 365 | | | | | 370 | | | | | 375 |
| Pro | Trp | Pro | Val | Val | Ile | Gly | Ile | Pro | Ala | Gly | Ala | Val | Phe | Ile |
| | | | | 380 | | | | | 385 | | | | | 390 |
| Leu | Gly | Thr | Leu | Leu | Leu | Trp | Leu | Cys | Gln | Ala | Gln | Lys | Lys | Pro |
| | | | | 395 | | | | | 400 | | | | | 405 |
| Cys | Thr | Pro | Ala | Pro | Ala | Pro | Pro | Leu | Pro | Gly | His | Arg | Pro | Pro |
| | | | | 410 | | | | | 415 | | | | | 420 |
| Gly | Thr | Ala | Arg | Asp | Arg | Ser | Gly | Asp | Lys | Asp | Leu | Pro | Ser | Leu |
| | | | | 425 | | | | | 430 | | | | | 435 |
| Ala | Ala | Leu | Ser | Ala | Gly | Pro | Gly | Val | Gly | Leu | Cys | Glu | Glu | His |
| | | | | 440 | | | | | 445 | | | | | 450 |
| Gly | Ser | Pro | Ala | Ala | Pro | Gln | His | Leu | Leu | Gly | Pro | Gly | Pro | Val |
| | | | | 455 | | | | | 460 | | | | | 465 |
| Ala | Gly | Pro | Lys | Leu | Tyr | Pro | Lys | Leu | Tyr | Thr | Asp | Ile | His | Thr |
| | | | | 470 | | | | | 475 | | | | | 480 |
| His | Thr | His | Thr | His | Ser | His | Thr | His | Ser | His | Val | Glu | Gly | Lys |
| | | | | 485 | | | | | 490 | | | | | 495 |
| Val | His | Gln | His | Ile | His | Tyr | Gln | Cys | | | | | | |
| | | | | 500 | | | | | | | | | | |

<210> 120

<211> 20

<212> DNA

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<220>

<223> Synthetic oligonucleotide probe

<400> 120

cgagatgacg ccgagccccc 20

<210> 121

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 121

cggttcgaca cgcggcaggt g 21

<210> 122

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 122

tgctgctcct gctgccgccg ctgctgctgg gggccttccc gccgg 45

<210> 123

<211> 4420

<212> DNA

<213> Homo sapiens

<400> 123

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gcctgggtgt tctccttcct ggtcctggaa gtcacatctg tgttggggag 200

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acccagcat ctttgccaag cctgccgaca ccctggagag ccctggtgag 300

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 <211> 1184
 <212> PRT
 <213> Homo sapiens

<400> 124
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 Arg Arg Val Gln Pro Gly Lys Lys Asn Pro Ser Ile Phe Ala Lys
 35 40 45
 Pro Ala Asp Thr Leu Glu Ser Pro Gly Glu Trp Thr Thr Trp Phe
 50 55 60
 Asn Ile Asp Tyr Pro Gly Gly Lys Gly Asp Tyr Glu Arg Leu Asp
 65 70 75
 Ala Ile Arg Phe Tyr Tyr Gly Asp Arg Val Cys Ala Arg Pro Leu
 80 85 90
 Arg Leu Glu Ala Arg Thr Thr Asp Trp Thr Pro Ala Gly Ser Thr
 95 100 105
 Gly Gln Val Val His Gly Ser Pro Arg Glu Gly Phe Trp Cys Leu
 110 115 120
 Asn Arg Glu Gln Arg Pro Gly Gln Asn Cys Ser Asn Tyr Thr Val
 125 130 135
 Arg Phe Leu Cys Pro Pro Gly Ser Leu Arg Arg Asp Thr Glu Arg
 140 145 150
 Ile Trp Ser Pro Trp Ser Pro Trp Ser Lys Cys Ser Ala Ala Cys
 155 160 165
 Gly Gln Thr Gly Val Gln Thr Arg Thr Arg Ile Cys Leu Ala Glu
 170 175 180
 Met Val Ser Leu Cys Ser Glu Ala Ser Glu Glu Gly Gln His Cys
 185 190 195
 Met Gly Gln Asp Cys Thr Ala Cys Asp Leu Thr Cys Pro Met Gly
 200 205 210

| | | | |
|-----------------|---------------------|---------------------|-----|
| Gln Val Asn Ala | Asp Cys Asp Ala Cys | Met Cys Gln Asp Phe | Met |
| | 215 | 220 | 225 |
| Leu His Gly Ala | Val Ser Leu Pro Gly | Gly Ala Pro Ala Ser | Gly |
| | 230 | 235 | 240 |
| Ala Ala Ile Tyr | Leu Leu Thr Lys Thr | Pro Lys Leu Leu Thr | Gln |
| | 245 | 250 | 255 |
| Thr Asp Ser Asp | Gly Arg Phe Arg Ile | Pro Gly Leu Cys Pro | Asp |
| | 260 | 265 | 270 |
| Gly Lys Ser Ile | Leu Lys Ile Thr Lys | Val Lys Phe Ala Pro | Ile |
| | 275 | 280 | 285 |
| Val Leu Thr Met | Pro Lys Thr Ser Leu | Lys Ala Ala Thr Ile | Lys |
| | 290 | 295 | 300 |
| Ala Glu Phe Val | Arg Ala Glu Thr Pro | Tyr Met Val Met Asn | Pro |
| | 305 | 310 | 315 |
| Glu Thr Lys Ala | Arg Arg Ala Gly Gln | Ser Val Ser Leu Cys | Cys |
| | 320 | 325 | 330 |
| Lys Ala Thr Gly | Lys Pro Arg Pro Asp | Lys Tyr Phe Trp Tyr | His |
| | 335 | 340 | 345 |
| Asn Asp Thr Leu | Leu Asp Pro Ser Leu | Tyr Lys His Glu Ser | Lys |
| | 350 | 355 | 360 |
| Leu Val Leu Arg | Lys Leu Gln Gln His | Gln Ala Gly Glu Tyr | Phe |
| | 365 | 370 | 375 |
| Cys Lys Ala Gln | Ser Asp Ala Gly Ala | Val Lys Ser Lys Val | Ala |
| | 380 | 385 | 390 |
| Gln Leu Ile Val | Thr Ala Ser Asp Glu | Thr Pro Cys Asn Pro | Val |
| | 395 | 400 | 405 |
| Pro Glu Ser Tyr | Leu Ile Arg Leu Pro | His Asp Cys Phe Gln | Asn |
| | 410 | 415 | 420 |
| Ala Thr Asn Ser | Phe Tyr Tyr Asp Val | Gly Arg Cys Pro Val | Lys |
| | 425 | 430 | 435 |
| Thr Cys Ala Gly | Gln Gln Asp Asn Gly | Ile Arg Cys Arg Asp | Ala |
| | 440 | 445 | 450 |
| Val Gln Asn Cys | Cys Gly Ile Ser Lys | Thr Glu Glu Arg Glu | Ile |
| | 455 | 460 | 465 |
| Gln Cys Ser Gly | Tyr Thr Leu Pro Thr | Lys Val Ala Lys Glu | Cys |
| | 470 | 475 | 480 |
| Ser Cys Gln Arg | Cys Thr Glu Thr Arg | Ser Ile Val Arg Gly | Arg |
| | 485 | 490 | 495 |
| Val Ser Ala Ala | Asp Asn Gly Glu Pro | Met Arg Phe Gly His | Val |
| | 500 | 505 | 510 |
| Tyr Met Gly Asn | Ser Arg Val Ser Met | Thr Gly Tyr Lys Gly | Thr |
| | 515 | 520 | 525 |

| | | | |
|---|-----|-----|-----|
| Phe Thr Leu His Val Pro Gln Asp Thr Glu Arg Leu Val Leu Thr | 530 | 535 | 540 |
| Phe Val Asp Arg Leu Gln Lys Phe Val Asn Thr Thr Lys Val Leu | 545 | 550 | 555 |
| Pro Phe Asn Lys Lys Gly Ser Ala Val Phe His Glu Ile Lys Met | 560 | 565 | 570 |
| Leu Arg Arg Lys Glu Pro Ile Thr Leu Glu Ala Met Glu Thr Asn | 575 | 580 | 585 |
| Ile Ile Pro Leu Gly Glu Val Val Gly Glu Asp Pro Met Ala Glu | 590 | 595 | 600 |
| Leu Glu Ile Pro Ser Arg Ser Phe Tyr Arg Gln Asn Gly Glu Pro | 605 | 610 | 615 |
| Tyr Ile Gly Lys Val Lys Ala Ser Val Thr Phe Leu Asp Pro Arg | 620 | 625 | 630 |
| Asn Ile Ser Thr Ala Thr Ala Ala Gln Thr Asp Leu Asn Phe Ile | 635 | 640 | 645 |
| Asn Asp Glu Gly Asp Thr Phe Pro Leu Arg Thr Tyr Gly Met Phe | 650 | 655 | 660 |
| Ser Val Asp Phe Arg Asp Glu Val Thr Ser Glu Pro Leu Asn Ala | 665 | 670 | 675 |
| Gly Lys Val Lys Val His Leu Asp Ser Thr Gln Val Lys Met Pro | 680 | 685 | 690 |
| Glu His Ile Ser Thr Val Lys Leu Trp Ser Leu Asn Pro Asp Thr | 695 | 700 | 705 |
| Gly Leu Trp Glu Glu Glu Gly Asp Phe Lys Phe Glu Asn Gln Arg | 710 | 715 | 720 |
| Arg Asn Lys Arg Glu Asp Arg Thr Phe Leu Val Gly Asn Leu Glu | 725 | 730 | 735 |
| Ile Arg Glu Arg Arg Leu Phe Asn Leu Asp Val Pro Glu Ser Arg | 740 | 745 | 750 |
| Arg Cys Phe Val Lys Val Arg Ala Tyr Arg Ser Glu Arg Phe Leu | 755 | 760 | 765 |
| Pro Ser Glu Gln Ile Gln Gly Val Val Ile Ser Val Ile Asn Leu | 770 | 775 | 780 |
| Glu Pro Arg Thr Gly Phe Leu Ser Asn Pro Arg Ala Trp Gly Arg | 785 | 790 | 795 |
| Phe Asp Ser Val Ile Thr Gly Pro Asn Gly Ala Cys Val Pro Ala | 800 | 805 | 810 |
| Phe Cys Asp Asp Gln Ser Pro Asp Ala Tyr Ser Ala Tyr Val Leu | 815 | 820 | 825 |
| Ala Ser Leu Ala Gly Glu Glu Leu Gln Ala Val Glu Ser Ser Pro | 830 | 835 | 840 |

| | | | | | |
|-----------------|---------------------|-------------------------|------|------|------|
| Lys Phe Asn Pro | Asn Ala Ile Gly Val | Pro Gln Pro Tyr Leu Asn | 845 | 850 | 855 |
| Lys Leu Asn Tyr | Arg Arg Thr Asp His | Glu Asp Pro Arg Val Lys | 860 | 865 | 870 |
| Lys Thr Ala Phe | Gln Ile Ser Met Ala | Lys Pro Arg Pro Asn Ser | 875 | 880 | 885 |
| Ala Glu Glu Ser | Asn Gly Pro Ile Tyr | Ala Phe Glu Asn Leu Arg | 890 | 895 | 900 |
| Ala Cys Glu Glu | Ala Pro Pro Ser Ala | Ala His Phe Arg Phe Tyr | 905 | 910 | 915 |
| Gln Ile Glu Gly | Asp Arg Tyr Asp Tyr | Asn Thr Val Pro Phe Asn | 920 | 925 | 930 |
| Glu Asp Asp Pro | Met Ser Trp Thr Glu | Asp Tyr Leu Ala Trp Trp | 935 | 940 | 945 |
| Pro Lys Pro Met | Glu Phe Arg Ala Cys | Tyr Ile Lys Val Lys Ile | 950 | 955 | 960 |
| Val Gly Pro Leu | Glu Val Asn Val Arg | Ser Arg Asn Met Gly Gly | 965 | 970 | 975 |
| Thr His Arg Arg | Thr Val Gly Lys Leu | Tyr Gly Ile Arg Asp Val | 980 | 985 | 990 |
| Arg Ser Thr Arg | Asp Arg Asp Gln Pro | Asn Val Ser Ala Ala Cys | 995 | 1000 | 1005 |
| Leu Glu Phe Lys | Cys Ser Gly Met Leu | Tyr Asp Gln Asp Arg Val | 1010 | 1015 | 1020 |
| Asp Arg Thr Leu | Val Lys Val Ile Pro | Gln Gly Ser Cys Arg Arg | 1025 | 1030 | 1035 |
| Ala Ser Val Asn | Pro Met Leu His Glu | Tyr Leu Val Asn His Leu | 1040 | 1045 | 1050 |
| Pro Leu Ala Val | Asn Asn Asp Thr Ser | Glu Tyr Thr Met Leu Ala | 1055 | 1060 | 1065 |
| Pro Leu Asp Pro | Leu Gly His Asn Tyr | Gly Ile Tyr Thr Val Thr | 1070 | 1075 | 1080 |
| Asp Gln Asp Pro | Arg Thr Ala Lys Glu | Ile Ala Leu Gly Arg Cys | 1085 | 1090 | 1095 |
| Phe Asp Gly Thr | Ser Asp Gly Ser Ser | Arg Ile Met Lys Ser Asn | 1100 | 1105 | 1110 |
| Val Gly Val Ala | Leu Thr Phe Asn Cys | Val Glu Arg Gln Val Gly | 1115 | 1120 | 1125 |
| Arg Gln Ser Ala | Phe Gln Tyr Leu Gln | Ser Thr Pro Ala Gln Ser | 1130 | 1135 | 1140 |
| Pro Ala Ala Gly | Thr Val Gln Gly Arg | Val Pro Ser Arg Arg Gln | 1145 | 1150 | 1155 |

Gln Arg Ala Ser Arg Gly Gly Gln Arg Gln Gly Gly Val Val Ala
 1160 1165 1170

Ser Leu Arg Phe Pro Arg Val Ala Gln Gln Pro Leu Ile Asn
 1175 1180

<210> 125
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 125
 ctggtgcctc aacagggagc ag 22

<210> 126
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 126
 ccattgtgca ggtcaggtca cag 23

<210> 127
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 127
 ctggagcaag tgctcagctg cctgtgggtca gactgggggtc 40

<210> 128
 <211> 2819
 <212> DNA
 <213> Homo sapiens

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 ttgggatctg ctttgaggct ccattctcat ttaaaaaaaaa atacagagac 150
 ctacctaccg gtacgcatac atacatatgt gtatatatat gtaaaactaga 200
 caaagatcgc agatcataaa gcaagctctg ctttagtttc caagaagatt 250
 acaaagaatt tagagatgta tttgtcaaga tccctgtoga ttcatgccct 300
 ttgggttacg gtgtcctcag tgatgcagcc ctaccctttg gtttggggac 350
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 gattacatgg cctgccagcc ggaatccacg gacatgacaa aatatctgaa 450

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 ttctgcaaaa tatgagacta tttccacttg ggaaaaatta caacagcaaa 2800
 aaaaaaaaaa aaaaaaaaaa 2819

<210> 129
 <211> 438
 <212> PRT
 <213> Homo sapiens

<400> 129
 Met Tyr Leu Ser Arg Ser Leu Ser Ile His Ala Leu Trp Val Thr
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 Val Ser Ser Val Met Gln Pro Tyr Pro Leu Val Trp Gly His Tyr
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 Asp Leu Cys Lys Thr Gln Ile Tyr Thr Glu Glu Gly Lys Val Trp
 35 40 45
 Asp Tyr Met Ala Cys Gln Pro Glu Ser Thr Asp Met Thr Lys Tyr
 50 55 60
 Leu Lys Val Lys Leu Asp Pro Pro Asp Ile Thr Cys Gly Asp Pro
 65 70 75
 Pro Glu Thr Phe Cys Ala Met Gly Asn Pro Tyr Met Cys Asn Asn
 80 85 90
 Glu Cys Asp Ala Ser Thr Pro Glu Leu Ala His Pro Pro Glu Leu
 95 100 105
 Met Phe Asp Phe Glu Gly Arg His Pro Ser Thr Phe Trp Gln Ser
 110 115 120
 Ala Thr Trp Lys Glu Tyr Pro Lys Pro Leu Gln Val Asn Ile Thr

| | | | | | |
|-----------------|---------------------|---------------------|-----|--|-----|
| | 125 | | 130 | | 135 |
| Leu Ser Trp Ser | Lys Thr Ile Glu Leu | Thr Asp Asn Ile Val | Ile | | |
| | 140 | | 145 | | 150 |
| Thr Phe Glu Ser | Gly Arg Pro Asp Gln | Met Ile Leu Glu Lys | Ser | | |
| | 155 | | 160 | | 165 |
| Leu Asp Tyr Gly | Arg Thr Trp Gln Pro | Tyr Gln Tyr Tyr Ala | Thr | | |
| | 170 | | 175 | | 180 |
| Asp Cys Leu Asp | Ala Phe His Met Asp | Pro Lys Ser Val Lys | Asp | | |
| | 185 | | 190 | | 195 |
| Leu Ser Gln His | Thr Val Leu Glu Ile | Ile Cys Thr Glu Glu | Tyr | | |
| | 200 | | 205 | | 210 |
| Ser Thr Gly Tyr | Thr Thr Asn Ser Lys | Ile Ile His Phe Glu | Ile | | |
| | 215 | | 220 | | 225 |
| Lys Asp Arg Phe | Ala Leu Phe Ala Gly | Pro Arg Leu Arg Asn | Met | | |
| | 230 | | 235 | | 240 |
| Ala Ser Leu Tyr | Gly Gln Leu Asp Thr | Thr Lys Lys Leu Arg | Asp | | |
| | 245 | | 250 | | 255 |
| Phe Phe Thr Val | Thr Asp Leu Arg Ile | Arg Leu Leu Arg Pro | Ala | | |
| | 260 | | 265 | | 270 |
| Val Gly Glu Ile | Phe Val Asp Glu Leu | His Leu Ala Arg Tyr | Phe | | |
| | 275 | | 280 | | 285 |
| Tyr Ala Ile Ser | Asp Ile Lys Val Arg | Gly Arg Cys Lys Cys | Asn | | |
| | 290 | | 295 | | 300 |
| Leu His Ala Thr | Val Cys Val Tyr Asp | Asn Ser Lys Leu Thr | Cys | | |
| | 305 | | 310 | | 315 |
| Glu Cys Glu His | Asn Thr Thr Gly Pro | Asp Cys Gly Lys Cys | Lys | | |
| | 320 | | 325 | | 330 |
| Lys Asn Tyr Gln | Gly Arg Pro Trp Ser | Pro Gly Ser Tyr Leu | Pro | | |
| | 335 | | 340 | | 345 |
| Ile Pro Lys Gly | Thr Ala Asn Thr Cys | Ile Pro Ser Ile Ser | Ser | | |
| | 350 | | 355 | | 360 |
| Ile Gly Thr Asn | Val Cys Asp Asn Glu | Leu Leu His Cys Gln | Asn | | |
| | 365 | | 370 | | 375 |
| Gly Gly Thr Cys | His Asn Asn Val Arg | Cys Leu Cys Pro Ala | Ala | | |
| | 380 | | 385 | | 390 |
| Tyr Thr Gly Ile | Leu Cys Glu Lys Leu | Arg Cys Glu Glu Ala | Gly | | |
| | 395 | | 400 | | 405 |
| Ser Cys Gly Ser | Asp Ser Gly Gln Gly | Ala Pro Pro His Gly | Thr | | |
| | 410 | | 415 | | 420 |
| Pro Ala Leu Leu | Leu Leu Thr Thr Leu | Leu Gly Thr Ala Ser | Pro | | |
| | 425 | | 430 | | 435 |
| Leu Val Phe | | | | | |

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<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 130
tcgattatgg acgaacatgg cagc 24

<210> 131
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 131
ttctgagatc cctcatcctc 20

<210> 132
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 132
aggttcaggg acagcaagtt tggg 24

<210> 133
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 133
tttgctggac ctcggtacg gaattggctt ccctctacgg acagctggat 50

<210> 134
<211> 1493
<212> DNA
<213> Homo sapiens

<400> 134
cccacgcgtc cgggtgacct gggccgagcc ctcccggtcg gctaagattg 50
ctgaggaggc ggcgggtagc tggcaggcgc cgacttccga aggccgccgt 100
ccgggdcgagg tgtcctcatg acttctcttg tggaccatgt ccgtgatctt 150
ttttgcctgc gtggtacggg taagggatgg actgcccctc tcagcctcta 200
ctgattttta ccacacccaa gatttttttg aatggaggag acggtcaag 250
agtttagcct tgcgactggc ccagtatcca ggtcgagggt ctgcagaagg 300

ttgtgacttt agtatacatt ttcttctttt cggggacgtg gcctgcatgg 350
ctatctgctc ctgccagtgt ccagcagcca tggccttctg cttcctggag 400
accctgtggt gggaattcac agcttcttat gacactacct gcattggcct 450
agcctccagg ccatacgctt ttcttgagtt tgacagcatc attcagaaag 500
tgaagtggca ttttaactat gtaagttcct ctcagatgga gtgcagcttg 550
gaaaaaattc aggaggagct caagttgcag cctccagcgg ttctcactct 600
ggaggacaca gatgtggcaa atgggggtgat gaatgggtcac acaccgatgc 650
acttgagacc tgctcctaatt ttccgaatgg aaccagtgc agccctgggt 700
atcctctccc tcatttctcaa catcatgtgt gctgccctga atctcattcg 750
aggagttcac cttgcagaac attctttaca ggatccaagg agctgggttct 800
gctggttgga ccaaacctcg tgagccagcc acccctgacc caaatgagga 850
gagctctgat tctcccatcc gggagcagtg atgtcaaaact tctgctgctg 900
gggaaatctc atcagcaggg agcctgtgga aaagggcatg tcagtgaat 950
ctgggaatgg ctggattcgg aaacatctgc ccatgtgtat tgatggcaga 1000
gctgttgccc acaagcgcct tttattttagg gtaaaattaa caaatccatt 1050
ctattcctct gacctatgct tagtacatat gacctttaac octtacattt 1100
atatgattct ggggttgctt cagaagtgtt atttcatgaa tcattcatat 1150
gatttgatcc ccaggattc tattttgttt aatgggcttt tctactaaaa 1200
gcataaaata ctgaggctga tttagtcagg gcaaaacat ttactttaca 1250
tattcgtttt caatacttgc tgttcatgtt acacaagctt cttacggttt 1300
tcttgtaaca ataaatatatt tgagtaaata atgggtacat tttaacaaac 1350
tcagtagtac aacctaaact tgtataaaag tgtgtaaaaa tgtatagcca 1400
tttatatcct atgtataaat taaatgaggt ggcttcagaa atggcagaat 1450
aaatctaaag tgttttattaa aaaaaaaaaa aaaaaaaaaa aag 1493

<210> 135
<211> 228
<212> PRT
<213> Homo sapiens

<400> 135
Met Ser Val Ile Phe Phe Ala Cys Val Val Arg Val Arg Asp Gly
1 5 10 15
Leu Pro Leu Ser Ala Ser Thr Asp Phe Tyr His Thr Gln Asp Phe
20 25 30
Leu Glu Trp Arg Arg Arg Leu Lys Ser Leu Ala Leu Arg Leu Ala
35 40 45

Gln Tyr Pro Gly Arg Gly Ser Ala Glu Gly Cys Asp Phe Ser Ile
 50 55 60
 His Phe Ser Ser Phe Gly Asp Val Ala Cys Met Ala Ile Cys Ser
 65 70 75
 Cys Gln Cys Pro Ala Ala Met Ala Phe Cys Phe Leu Glu Thr Leu
 80 85 90
 Trp Trp Glu Phe Thr Ala Ser Tyr Asp Thr Thr Cys Ile Gly Leu
 95 100 105
 Ala Ser Arg Pro Tyr Ala Phe Leu Glu Phe Asp Ser Ile Ile Gln
 110 115 120
 Lys Val Lys Trp His Phe Asn Tyr Val Ser Ser Ser Gln Met Glu
 125 130 135
 Cys Ser Leu Glu Lys Ile Gln Glu Glu Leu Lys Leu Gln Pro Pro
 140 145 150
 Ala Val Leu Thr Leu Glu Asp Thr Asp Val Ala Asn Gly Val Met
 155 160 165
 Asn Gly His Thr Pro Met His Leu Glu Pro Ala Pro Asn Phe Arg
 170 175 180
 Met Glu Pro Val Thr Ala Leu Gly Ile Leu Ser Leu Ile Leu Asn
 185 190 195
 Ile Met Cys Ala Ala Leu Asn Leu Ile Arg Gly Val His Leu Ala
 200 205 210
 Glu His Ser Leu Gln Asp Pro Arg Ser Trp Phe Cys Trp Leu Asp
 215 220 225
 Gln Thr Ser

<210> 136
 <211> 239
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 39, 61, 143, 209
 <223> unknown base

<400> 136
 tgcttcctgg agaccctgtg gtgggaattc acagcttcnt atgacactac 50
 ctgcattggc ntagcctcca ggccatacgc ttttcttgag tttgacagca 100
 tcattcagaa agtgaagtgg cattttaact atgtaagtgc ctntcagatg 150
 gagtgcagct tggaaaaaat tcaggaggag ctcaagttgc agcctccagc 200
 ggttctcant atggaggaca cagatgtggc aaatgggggt 239

<210> 137
 <211> 2300
 <212> DNA

<213> Homo sapiens

<400> 137

ctcagcggcg cttcctcgta gcgagcctag tggcgggtgt ttgcattgaa 50
acgtgagcgc gacccgacct taaagagtgg ggagcaaagg gaggacagag 100
ccctttaaaa cgaggcgggt ggtgcctgcc cctttaaggg cggggcgtcc 150
ggacgactgt atctgagccc cagactgccc cgagtctctg tcgcaggctg 200
cgaggaaagg cccctagget gggctctgggt gcttggcggc ggcggcttcc 250
tccccgctcg tccctcccgg gccagaggc acctcggett cagtcattgt 300
gagcagagta tggaagcacc tgactacgaa gtgctatccg tgcgagaaca 350
gctattccac gagaggatcc gcgagtgtat tatatcaaca cttctgtttg 400
caacactgta catcctctgc cacatcttcc tgaccgctt caagaagcct 450
gctgagttca ccacagtgga tgatgaagat gccaccgtca acaagattgc 500
gctcgagctg tgcaccttta ccttggaat tgccctgggt gctgtcctgc 550
tctgcccctt ctccatcatc agcaatgagg tgctgctctc cctgcctcgg 600
aactactaca tccagtggct caacggctcc ctcatccatg gcctctggaa 650
ccttgttttt ctcttcccca acctgtccct catcttctc atgccctttg 700
catatttctt cactgagtct gagggtttt ctggctccag aaagggtgtc 750
ctgggccggg tctatgagac agtgggtgat ttgatgctcc tactctgct 800
gggtgctagg atggtgtggg tggcatcagc cattgtggac aagaacaagg 850
ccaacagaga gtcactctat gacttttggg agtactatct cccctacctc 900
tactcatgca tctccttctt tggggttctg ctgctcctgg tgtgtactcc 950
actgggtctc gcccgcatgt tctccgtcac tgggaagctg ctagtcaagc 1000
cccggctgct ggaagacctg gaggagcagc tgtactgctc agcctttgag 1050
gaggcagccc tgaccgcag gatctgtaat cctacttctt gctggctgcc 1100
tttagacatg gagctgtac acagacaggt cctggctctg cagacacaga 1150
gggtcctgct ggagaagagg cggaaggctt cagcctggca acggaacctg 1200
ggctaccccc tggctatgct gtgcttgctg gtgctgacgg gcctgtctgt 1250
gctcattgtg gccatccaca tcttgagct gctcatcgat gaggctgcca 1300
tgccccgagg catgcagggt acctccttag gccaggctc cttctccaag 1350
ctgggctcct ttggtgccgt cattcagggt gtactcatct ttacctaata 1400
gggtgcctca gttgtgggt tctatagctc tccactctt cggagcctgc 1450
ggcccagatg gcacgacaat gccatgacgc agataattgg gaactgtgtc 1500

tgtctcctgg tcctaagctc agcacttcct gtcttctctc gaaccttggg 1550
gctcactcgc tttgacctgc tgggtgactt tggacgcttc aactggctgg 1600
gcaatttcta catttgtgtc ctctacaacg cagcctttgc aggcctcacc 1650
acactctgtc tgggtgaagac cttcactgca gctgtgcggg cagagctgat 1700
ccgggccttt gggctggaca gactgccgct gcccgctctcc ggtttcccc 1750
aggcatctag gaagacctcag caccagtgc ctccagctgg ggggtgggaag 1800
gaaaaaactg gacactgcca tctgctgcct aggcctggag ggaagcccaa 1850
ggctacttgg acctcaggac ctggaatctg agaggggtggg tggcagaggg 1900
gagcagagcc atctgcacta ttgcataatc tgagccagag tttgggacca 1950
ggacctcctg cttttccata cttactgtg gcctcagcat ggggtagggc 2000
tgggtgactg ggtctagccc ctgatcccaa atctgtttac acatcaatct 2050
gcctcactgc tgttctgggc catccccata gccatgttta catgatttga 2100
tgtgcaatag ggtggggtag gggcagggaa aggactgggc cagggcaggg 2150
tcgggagata gattgtctcc cttgcctctg gccagcaga gcctaagcac 2200
tgtgctatcc tggaggggct ttggaccacc tgaaagacca aggggatagg 2250
gaggaggagg cttcagccat cagcaataaa gttgatcca gggaaaaaaa 2300

<210> 138
<211> 489
<212> PRT
<213> Homo sapiens

<400> 138
Met Glu Ala Pro Asp Tyr Glu Val Leu Ser Val Arg Glu Gln Leu
1 5 10 15
Phe His Glu Arg Ile Arg Glu Cys Ile Ile Ser Thr Leu Leu Phe
20 25 30
Ala Thr Leu Tyr Ile Leu Cys His Ile Phe Leu Thr Arg Phe Lys
35 40 45
Lys Pro Ala Glu Phe Thr Thr Val Asp Asp Glu Asp Ala Thr Val
50 55 60
Asn Lys Ile Ala Leu Glu Leu Cys Thr Phe Thr Leu Ala Ile Ala
65 70 75
Leu Gly Ala Val Leu Leu Leu Pro Phe Ser Ile Ile Ser Asn Glu
80 85 90
Val Leu Leu Ser Leu Pro Arg Asn Tyr Tyr Ile Gln Trp Leu Asn
95 100 105
Gly Ser Leu Ile His Gly Leu Trp Asn Leu Val Phe Leu Phe Pro
110 115 120
Asn Leu Ser Leu Ile Phe Leu Met Pro Phe Ala Tyr Phe Phe Thr

| | 125 | 130 | 135 |
|-------------------------------------|-------------------------|-----|-----|
| Glu Ser Glu Gly Phe Ala Gly Ser Arg | Lys Gly Val Leu Gly Arg | | |
| 140 | 145 | 150 | |
| Val Tyr Glu Thr Val Val Met Leu Met | Leu Leu Thr Leu Leu Val | | |
| 155 | 160 | 165 | |
| Leu Gly Met Val Trp Val Ala Ser Ala | Ile Val Asp Lys Asn Lys | | |
| 170 | 175 | 180 | |
| Ala Asn Arg Glu Ser Leu Tyr Asp Phe | Trp Glu Tyr Tyr Leu Pro | | |
| 185 | 190 | 195 | |
| Tyr Leu Tyr Ser Cys Ile Ser Phe Leu | Gly Val Leu Leu Leu Leu | | |
| 200 | 205 | 210 | |
| Val Cys Thr Pro Leu Gly Leu Ala Arg | Met Phe Ser Val Thr Gly | | |
| 215 | 220 | 225 | |
| Lys Leu Leu Val Lys Pro Arg Leu Leu | Glu Asp Leu Glu Glu Gln | | |
| 230 | 235 | 240 | |
| Leu Tyr Cys Ser Ala Phe Glu Glu Ala | Ala Leu Thr Arg Arg Ile | | |
| 245 | 250 | 255 | |
| Cys Asn Pro Thr Ser Cys Trp Leu Pro | Leu Asp Met Glu Leu Leu | | |
| 260 | 265 | 270 | |
| His Arg Gln Val Leu Ala Leu Gln Thr | Gln Arg Val Leu Leu Glu | | |
| 275 | 280 | 285 | |
| Lys Arg Arg Lys Ala Ser Ala Trp Gln | Arg Asn Leu Gly Tyr Pro | | |
| 290 | 295 | 300 | |
| Leu Ala Met Leu Cys Leu Leu Val Leu | Thr Gly Leu Ser Val Leu | | |
| 305 | 310 | 315 | |
| Ile Val Ala Ile His Ile Leu Glu Leu | Leu Ile Asp Glu Ala Ala | | |
| 320 | 325 | 330 | |
| Met Pro Arg Gly Met Gln Gly Thr Ser | Leu Gly Gln Val Ser Phe | | |
| 335 | 340 | 345 | |
| Ser Lys Leu Gly Ser Phe Gly Ala Val | Ile Gln Val Val Leu Ile | | |
| 350 | 355 | 360 | |
| Phe Tyr Leu Met Val Ser Ser Val Val | Gly Phe Tyr Ser Ser Pro | | |
| 365 | 370 | 375 | |
| Leu Phe Arg Ser Leu Arg Pro Arg Trp | His Asp Thr Ala Met Thr | | |
| 380 | 385 | 390 | |
| Gln Ile Ile Gly Asn Cys Val Cys Leu | Leu Val Leu Ser Ser Ala | | |
| 395 | 400 | 405 | |
| Leu Pro Val Phe Ser Arg Thr Leu Gly | Leu Thr Arg Phe Asp Leu | | |
| 410 | 415 | 420 | |
| Leu Gly Asp Phe Gly Arg Phe Asn Trp | Leu Gly Asn Phe Tyr Ile | | |
| 425 | 430 | 435 | |
| Val Phe Leu Tyr Asn Ala Ala Phe Ala | Gly Leu Thr Thr Leu Cys | | |

| | | | | | |
|---|-----|--|-----|--|-----|
| | 440 | | 445 | | 450 |
| Leu Val Lys Thr Phe Thr Ala Ala Val Arg Ala Glu Leu Ile Arg | | | | | |
| | 455 | | 460 | | 465 |
| Ala Phe Gly Leu Asp Arg Leu Pro Leu Pro Val Ser Gly Phe Pro | | | | | |
| | 470 | | 475 | | 480 |
| Gln Ala Ser Arg Lys Thr Gln His Gln | | | | | |
| | 485 | | | | |

<210> 139
 <211> 294
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 53, 57
 <223> unknown base

<400> 139
 ggctgccgag ggaaggcccc ttgggttggt cttggttgct tggcggcggc 50
 ggnttcttcc ccgtcgtcc tccccgggcc cagaggcacc tcggcttcag 100
 tcatgctgag cagagtatgg aagcacctga ctacgaagtg ctatccgtgc 150
 gagaacagct attccacgag aggatccgcg agtgtattat atcaacactt 200
 ctgtttgcaa cactgtacat cctctgccac atcttcctga ccgcttcaa 250
 gaagcctgct gagttcacca cagtggatga tgaagatgcc accg 294

<210> 140
 <211> 526
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 197, 349
 <223> unknown base

<400> 140
 gaccgacctt aaagagtggg agcaaaggga ggacagagcc ttttaaaacg 50
 aggcggtggt gcttgcctt taagggcggg gcgtccggac gactgtatct 100
 gagccccaga ctgccccgag tttctgtcgc aggctgcgag gaaaggcccc 150
 taggctgggt ctggtgcttg gcggcggcgg ctctctcccc gttgtcttcc 200
 ccgggcccag aggcacctcg gcttcagtca tgctgagcag agtatggaag 250
 cacctgacta cgaagtgcta tccgtgcgag aacagctatt ccacgagagg 300
 atccgcgagt gtattatata aacacttctg tttgcaacac tgtacatct 350
 ctgccacatc ttctgaccc gcttcaagaa gcctgctgag ttcaccacag 400
 tggatgatga agatgccacc gtcaacaaga ttgcgctcga gctgtgcacc 450

tttaccctgg caattgccct ggggtgctgtc ctgctcctgc ctttctccat 500
catcagcaat gaggtgctgc actccc 526

<210> 141
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 141
gactgtatct gagccccaga ctgc 24

<210> 142
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 142
tcagcaatga ggtgctgctc 20

<210> 143
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 143
tgaggaagat gagggacagg ttgg 24

<210> 144
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 144
tatggaagca cctgactacg aagtgcctatc cgtgcgagaa cagctattcc 50

<210> 145
<211> 685
<212> DNA
<213> Homo sapiens

<400> 145
gatgtgctcc ttggagctgg tgtgcagtgt cctgactgta agatcaagtc 50
caaacctgtt ttggaattga ggaaacttct cttttgatct cagcccttgg 100
tggtccagggt cttcatgctg ctgtgggtga tattactggc cctggctcct 150
gtcagtggac agtttgcaag gacaccagc cccattatct tcctccagcc 200
tccatggacc acagtcttcc aaggagagag agtgaccctc acttgcaagg 250

gatttcgctt ctactcacca cagaaaacaa aatggtacca tcggtacctt 300
 gggaaagaaa tactaagaga aaccccagac aatatccttg aggttcagga 350
 atctggagag tacagatgcc aggcccaggg ctcccctctc agtagccctg 400
 tgcacttgga tttttcttca gagatgggat ttctctcatgc tgcccaggct 450
 aatgttgaac tcctgggctc aagtgatctg ctcacctagg cctctcaaag 500
 cgctgggatt acagcttcgc tgatcctgca agctccactt tctgtgtttg 550
 aaggagactc tgtggttctg aggtgccggg caaaggcgga agtaacactg 600
 aataatacta tttacaagaa tgataatgtc ctggcattcc ttaataaaaag 650
 aactgacttc caaaaaaaaa aaaaaaaaaa aaaaa 685

<210> 146
 <211> 124
 <212> PRT
 <213> Homo sapiens

<400> 146
 Met Leu Leu Trp Val Ile Leu Leu Val Leu Ala Pro Val Ser Gly
 1 5 10 15
 Gln Phe Ala Arg Thr Pro Arg Pro Ile Ile Phe Leu Gln Pro Pro
 20 25 30
 Trp Thr Thr Val Phe Gln Gly Glu Arg Val Thr Leu Thr Cys Lys
 35 40 45
 Gly Phe Arg Phe Tyr Ser Pro Gln Lys Thr Lys Trp Tyr His Arg
 50 55 60
 Tyr Leu Gly Lys Glu Ile Leu Arg Glu Thr Pro Asp Asn Ile Leu
 65 70 75
 Glu Val Gln Glu Ser Gly Glu Tyr Arg Cys Gln Ala Gln Gly Ser
 80 85 90
 Pro Leu Ser Ser Pro Val His Leu Asp Phe Ser Ser Glu Met Gly
 95 100 105
 Phe Pro His Ala Ala Gln Ala Asn Val Glu Leu Leu Gly Ser Ser
 110 115 120
 Asp Leu Leu Thr

<210> 147
 <211> 1621
 <212> DNA
 <213> Homo sapiens

<400> 147
 cagaagaggg ggctagctag ctgtctctgc ggaccaggga gacccccgcg 50
 cccccccggt gtgaggcggc ctcacagggc cgggtgggct ggcgagccga 100
 cgcggcggcg gaggaggctg tgaggagtgt gtggaacagg acccgggaca 150

gaggaaccat ggctccgcag aacctgagca ccttttgcct gttgctgcta 200
 tacctcatcg gggcggtgat tgccggacga gatctctata agatcttggg 250
 ggtgcctcga agtgccctcta taaaggatat taaaaaggcc tataggaaac 300
 tagccctgca gcttcatccc gaccggaacc ctgatgatcc acaagcccag 350
 gagaaattcc aggatctggg tgctgcttat gaggttctgt cagatagtga 400
 gaaacggaaa cagtacgata cttatggtga agaaggatta aaagatggtc 450
 atcagagctc ccatggagac attttttcac acttctttgg ggattttggt 500
 ttcatgtttg gaggaacccc tcgtcagcaa gacagaaata ttccaagagg 550
 aagtgatatt attgtagatc tagaagtcac tttggaagaa gtatatgcag 600
 gaaattttgt ggaagtagtt agaaacaaac ctgtggcaag gcaggctcct 650
 ggcaaacgga agtgcaattg tcggcaagag atgcggacca cccagctggg 700
 ccctgggagc ttccaaatga cccaggaggt ggtctgcgac gaatgcccta 750
 atgtcaaaact agtgaatgaa gaacgaacgc tggaagtaga aatagagcct 800
 ggggtgagag acggcatgga gtaccccttt attggagaag gtgagcctca 850
 cgtggatggg gagcctggag atttacggtt ccgaatcaaa gttgtcaagc 900
 acccaatatt tgaaaggaga ggagatgatt tgtacacaaa tgtgacaatc 950
 tcattagtgt agtcactggt tggctttgag atggatatta ctacttga 1000
 tggtcacaag gtacatattt cccgggataa gatcaccagg ccaggagcga 1050
 agctatggaa gaaaggggaa gggctcccca actttgacaa caacaatatc 1100
 aagggtcttt tgataatcac ttttgatgtg gatcttccaa aagaacagtt 1150
 aacagaggaa gcgagagaag gtatcaaaca gctactgaaa caagggtcag 1200
 tgcagaaggt atacaatgga ctgcaaggat attgagagtg aataaaattg 1250
 gactttgttt aaaataagtg aataagcgat atttattatc tgcaagggtt 1300
 ttttggtgtg gtttttgttt ttattttcaa tatgcaagtt aggcttaatt 1350
 tttttatcta atgatcatca tgaaatgaat aagagggtt aagaatttgt 1400
 ccatttgcat tcggaaaaga atgaccagca aaagggttac taatacctct 1450
 ccctttggg atttaatgtc tgggtgctgcc gcctgagttt caagaattaa 1500
 agctgcaaga ggactccagg agcaaaagaa acacaatata gaggggttga 1550
 gttgttagca atttcattca aaatgccaac tggagaagtc tgtttttaaa 1600
 tacattttgt tgttattttt a 1621

<210> 148
 <211> 358
 <212> PRT

<213> Homo sapiens

<400> 148

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Pro | Gln | Asn | Leu | Ser | Thr | Phe | Cys | Leu | Leu | Leu | Leu | Tyr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Leu | Ile | Gly | Ala | Val | Ile | Ala | Gly | Arg | Asp | Phe | Tyr | Lys | Ile | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gly | Val | Pro | Arg | Ser | Ala | Ser | Ile | Lys | Asp | Ile | Lys | Lys | Ala | Tyr |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Arg | Lys | Leu | Ala | Leu | Gln | Leu | His | Pro | Asp | Arg | Asn | Pro | Asp | Asp |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gln | Ala | Gln | Glu | Lys | Phe | Gln | Asp | Leu | Gly | Ala | Ala | Tyr | Glu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Val | Leu | Ser | Asp | Ser | Glu | Lys | Arg | Lys | Gln | Tyr | Asp | Thr | Tyr | Gly |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Glu | Glu | Gly | Leu | Lys | Asp | Gly | His | Gln | Ser | Ser | His | Gly | Asp | Ile |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Phe | Ser | His | Phe | Phe | Gly | Asp | Phe | Gly | Phe | Met | Phe | Gly | Gly | Thr |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Pro | Arg | Gln | Gln | Asp | Arg | Asn | Ile | Pro | Arg | Gly | Ser | Asp | Ile | Ile |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Val | Asp | Leu | Glu | Val | Thr | Leu | Glu | Glu | Val | Tyr | Ala | Gly | Asn | Phe |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Val | Glu | Val | Val | Arg | Asn | Lys | Pro | Val | Ala | Arg | Gln | Ala | Pro | Gly |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Lys | Arg | Lys | Cys | Asn | Cys | Arg | Gln | Glu | Met | Arg | Thr | Thr | Gln | Leu |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Gly | Pro | Gly | Arg | Phe | Gln | Met | Thr | Gln | Glu | Val | Val | Cys | Asp | Glu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Cys | Pro | Asn | Val | Lys | Leu | Val | Asn | Glu | Glu | Arg | Thr | Leu | Glu | Val |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Glu | Ile | Glu | Pro | Gly | Val | Arg | Asp | Gly | Met | Glu | Tyr | Pro | Phe | Ile |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Gly | Glu | Gly | Glu | Pro | His | Val | Asp | Gly | Glu | Pro | Gly | Asp | Leu | Arg |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Phe | Arg | Ile | Lys | Val | Val | Lys | His | Pro | Ile | Phe | Glu | Arg | Arg | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Asp | Asp | Leu | Tyr | Thr | Asn | Val | Thr | Ile | Ser | Leu | Val | Glu | Ser | Leu |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Val | Gly | Phe | Glu | Met | Asp | Ile | Thr | His | Leu | Asp | Gly | His | Lys | Val |
| | | | | 275 | | | | | 280 | | | | | 285 |
| His | Ile | Ser | Arg | Asp | Lys | Ile | Thr | Arg | Pro | Gly | Ala | Lys | Leu | Trp |
| | | | | 290 | | | | | 295 | | | | | 300 |

Lys Lys Gly Glu Gly Leu Pro Asn Phe Asp Asn Asn Asn Ile Lys
 305 310 315

Gly Ser Leu Ile Ile Thr Phe Asp Val Asp Phe Pro Lys Glu Gln
 320 325 330

Leu Thr Glu Glu Ala Arg Glu Gly Ile Lys Gln Leu Leu Lys Gln
 335 340 345

Gly Ser Val Gln Lys Val Tyr Asn Gly Leu Gln Gly Tyr
 350 355

<210> 149
 <211> 509
 <212> DNA
 <213> Homo sapiens

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 <222> 34, 52, 134, 142, 155, 158, 196, 217, 228, 272, 347, 410, 445,
 482
 <223> unknown base

<400> 149
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 gaccgggaca gaggaacat ggttcgcag aacntgagca cnttttgcct 150
 gttgntgnta tacttcacg gggcggtgat tgccggacga gatttntata 200
 agattttggg gtgcctngaa gtgcctnta taaaggatat taaaaggcc 250
 tatagaaac tagcctgca gntttatccc gaccggaacc ctgatgatcc 300
 acaagcccag gagaaattcc aggatattggg tgctgcttat gaggttntgt 350
 cagatagtga gaaacggaaa cagtacgata attatggtga agaaggatta 400
 aaagatggtt atcagagctc ccatggagac attttttcac acttntttgg 450
 ggattttggg ttcattgttg gaggaacccc tngtcagcaa gacagaaata 500
 ttccaagag 509

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 <213> Homo sapiens

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 ctcttcccca atttgcaact tccagcagct ttagcccatg aggaggatgt 150
 gaccgggact gagtcaggag ccctctggaa gcatggagac tgtggtgatt 200
 gttgccatag gtgtgctggc caccatcttt ctggcttcgt ttgcagcctt 250
 ggtgctggtt tgcaggcagc gctaactgccg gccgcgagac ctgctgcagc 300

| | | | | | |
|---|---|--|-----|--|-----|
| | 35 | | 40 | | 45 |
| Ile Val Asp Leu | Ile Gly Ala Met Glu Thr Gln Ser Glu Pro Ser | | | | |
| | 50 | | 55 | | 60 |
| Glu Leu Glu Leu Asp Asp Val Val Ile Thr Asn Pro His Ile Glu | | | | | |
| | 65 | | 70 | | 75 |
| Ala Ile Leu Glu Asn Glu Asp Trp Ile Glu Asp Ala Ser Gly Leu | | | | | |
| | 80 | | 85 | | 90 |
| Met Ser His Cys Ile Ala Ile Leu Lys Ile Cys His Thr Leu Thr | | | | | |
| | 95 | | 100 | | 105 |
| Glu Lys Leu Val Ala Met Thr Met Gly Ser Gly Ala Lys Met Lys | | | | | |
| | 110 | | 115 | | 120 |
| Thr Ser Ala Ser Val Ser Asp Ile Ile Val Val Ala Lys Arg Ile | | | | | |
| | 125 | | 130 | | 135 |
| Ser Pro Arg Val Asp Asp Val Val Lys Ser Met Tyr Pro Pro Leu | | | | | |
| | 140 | | 145 | | 150 |
| Asp Pro Lys Leu Leu Asp Ala Arg Thr Thr Ala Leu Leu Leu Ser | | | | | |
| | 155 | | 160 | | 165 |
| Val Ser His Leu Val Leu Val Thr Arg Asn Ala Cys His Leu Thr | | | | | |
| | 170 | | 175 | | 180 |
| Gly Gly Leu Asp Trp Ile Asp Gln Ser Leu Ser Ala Ala Glu Glu | | | | | |
| | 185 | | 190 | | 195 |
| His Leu Glu Val Leu Arg Glu Ala Ala Leu Ala Ser Glu Pro Asp | | | | | |
| | 200 | | 205 | | 210 |
| Lys Gly Leu Pro Gly Pro Glu Gly Phe Leu Gln Glu Gln Ser Ala | | | | | |
| | 215 | | 220 | | 225 |

Ile

<210> 152
 <211> 1027
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 1017, 1020
 <223> unknown base

<400> 152
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 aaaattggaa tgggattaac aggatttga gtgtttttcc tgttctttgg 150
 aatgattctc ttttttgaca aagcactact ggctattgga aatgttttat 200
 ttgtagccgg cttggctttt gtaattggtt tagaaagaac attcagattc 250
 ttcttccaaa aacataaaat gaaagctaca gggtttttttc tgggtggtgt 300

attttagtagtc cttatttggtt ggcctttgat aggcattgac ttcgaaattt 350
atggattttt tctcttggtc aggggcttct ttctgtgctg tgttggtt 400
attagaagag tgccagtcct tggatccctc ctaaatttac ctggaattag 450
atcatttgta gataaagttg gagaaagcaa caatatggta taacaacaag 500
tgaatttgaa gactcattta aaatattgtg ttatttataa agtcatttga 550
agaatattca gcacaaaatt aaattacatg aaatagcttg taatgttctt 600
tacaggagtt taaaacgtat agcctacaaa gtaccagcag caaattagca 650
aagaagcagt gaaaacaggc ttctactcaa gtgaactaag aagaagtcag 700
caagcaaaact gagagaggtg aaatccatgt taatgatgct taagaaactc 750
ttgaaggcta tttgtgttgt ttttcacaaa tgtgcgaaac tcagccatcc 800
ttagagaact gtggtgcttg tttcttttct ttttattttg aaggctcagg 850
agcatccata ggcatttgct ttttagaagt gtccactgca atggcaaaaa 900
tatttccagt tgcactgtat ctctggaagt gatgcatgaa ttcgattgga 950
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ggattacttt tttttgngcn cagggcc 1027

<210> 153

<211> 138

<212> PRT

<213> Homo sapiens

<220>

<221> N-myristoylation Sites

<222> 11-16, 51-56 and 116-121

<223> N-myristoylation Sites.

<220>

<221> Transmembrane domains

<222> 12-30, 33-52, 69-89 and 93-109

<223> Transmembrane domains

<220>

<221> Aminoacyl-transfer RNA Synthetases.

<222> 49-59

<223> Aminoacyl-transfer RNA synthetases class-II protein.

<400> 153

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Gly Phe Gly Val Phe Phe Leu Phe Phe Gly Met Ile Leu Phe Phe
20 25 30

Asp Lys Ala Leu Leu Ala Ile Gly Asn Val Leu Phe Val Ala Gly
35 40 45

Leu Ala Phe Val Ile Gly Leu Glu Arg Thr Phe Arg Phe Phe Phe
50 55 60

Gln Lys His Lys Met Lys Ala Thr Gly Phe Phe Leu Gly Gly Val
65 70 75
Phe Val Val Leu Ile Gly Trp Pro Leu Ile Gly Met Ile Phe Glu
80 85 90
Ile Tyr Gly Phe Phe Leu Leu Phe Arg Gly Phe Phe Pro Val Val
95 100 105
Val Gly Phe Ile Arg Arg Val Pro Val Leu Gly Ser Leu Leu Asn
110 115 120
Leu Pro Gly Ile Arg Ser Phe Val Asp Lys Val Gly Glu Ser Asn
125 130 135
Asn Met Val

<210> 154
<211> 405
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 66
<223> unknown base

<400> 154
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ccactgcagc catgatctcc ttaacggaca cgcagaaaat tggaatggga 150
ttaaccggat ttggagtgtt tttcctgttc tttggaatga ttctcttttt 200
tgacaaagca ctactggcta ttggaaatgt tttatttgta gccggcttgg 250
cttttgtaat tggtttagaa agaacattca gattcttctt ccaaaaacat 300
aaaatgaaag ctacaggttt ttttctgggt ggtgtatttg tagtccttat 350
tggttggcct ttgataggca tgatcttoga aatttatgga ttttttctct 400
tgttc 405

<210> 155
<211> 1781
<212> DNA
<213> Homo sapiens

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tttcttctt ctggaaatct ttgactgtgg gtagttattt atttctgaat 150
aagagcgtcc acgcatcatg gacctcgcg gactgctgaa gtctcagttc 200
ctgtgccacc tggcttcttg ctacgtcttt attgcctcag ggctaatacat 250

caacaccatt cagctcttca ctctcctcct ctggcccatt aacaagcagc 300
 tcttccggaa gatcaactgc agactgtcct attgcatctc aagccagctg 350
 gtgatgctgc tggagtgggtg gtcgggcacg gaatgcacca tcttcacgga 400
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 cgcgcaagtg ggagcaggat cgcaagacgg ttgccaccag tttgcagcac 650
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 gctgcagggg agggcagggc tggggaccga aggggacaag ttcccctttc 1650
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<210> 156

<211> 378
 <212> PRT
 <213> Homo sapiens

<400> 156

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Asp | Leu | Ala | Gly | Leu | Leu | Lys | Ser | Gln | Phe | Leu | Cys | His | Leu | 1 | 5 | 10 | 15 |
| Val | Phe | Cys | Tyr | Val | Phe | Ile | Ala | Ser | Gly | Leu | Ile | Ile | Asn | Thr | 20 | 25 | 30 | |
| Ile | Gln | Leu | Phe | Thr | Leu | Leu | Leu | Trp | Pro | Ile | Asn | Lys | Gln | Leu | 35 | 40 | 45 | |
| Phe | Arg | Lys | Ile | Asn | Cys | Arg | Leu | Ser | Tyr | Cys | Ile | Ser | Ser | Gln | 50 | 55 | 60 | |
| Leu | Val | Met | Leu | Leu | Glu | Trp | Trp | Ser | Gly | Thr | Glu | Cys | Thr | Ile | 65 | 70 | 75 | |
| Phe | Thr | Asp | Pro | Arg | Ala | Tyr | Leu | Lys | Tyr | Gly | Lys | Glu | Asn | Ala | 80 | 85 | 90 | |
| Ile | Val | Val | Leu | Asn | His | Lys | Phe | Glu | Ile | Asp | Phe | Leu | Cys | Gly | 95 | 100 | 105 | |
| Trp | Ser | Leu | Ser | Glu | Arg | Phe | Gly | Leu | Leu | Gly | Gly | Ser | Lys | Val | 110 | 115 | 120 | |
| Leu | Ala | Lys | Lys | Glu | Leu | Ala | Tyr | Val | Pro | Ile | Ile | Gly | Trp | Met | 125 | 130 | 135 | |
| Trp | Tyr | Phe | Thr | Glu | Met | Val | Phe | Cys | Ser | Arg | Lys | Trp | Glu | Gln | 140 | 145 | 150 | |
| Asp | Arg | Lys | Thr | Val | Ala | Thr | Ser | Leu | Gln | His | Leu | Arg | Asp | Tyr | 155 | 160 | 165 | |
| Pro | Glu | Lys | Tyr | Phe | Phe | Leu | Ile | His | Cys | Glu | Gly | Thr | Arg | Phe | 170 | 175 | 180 | |
| Thr | Glu | Lys | Lys | His | Glu | Ile | Ser | Met | Gln | Val | Ala | Arg | Ala | Lys | 185 | 190 | 195 | |
| Gly | Leu | Pro | Arg | Leu | Lys | His | His | Leu | Leu | Pro | Arg | Thr | Lys | Gly | 200 | 205 | 210 | |
| Phe | Ala | Ile | Thr | Val | Arg | Ser | Leu | Arg | Asn | Val | Val | Ser | Ala | Val | 215 | 220 | 225 | |
| Tyr | Asp | Cys | Thr | Leu | Asn | Phe | Arg | Asn | Asn | Glu | Asn | Pro | Thr | Leu | 230 | 235 | 240 | |
| Leu | Gly | Val | Leu | Asn | Gly | Lys | Lys | Tyr | His | Ala | Asp | Leu | Tyr | Val | 245 | 250 | 255 | |
| Arg | Arg | Ile | Pro | Leu | Glu | Asp | Ile | Pro | Glu | Asp | Asp | Asp | Glu | Cys | 260 | 265 | 270 | |
| Ser | Ala | Trp | Leu | His | Lys | Leu | Tyr | Gln | Glu | Lys | Asp | Ala | Phe | Gln | 275 | 280 | 285 | |
| Glu | Glu | Tyr | Tyr | Arg | Thr | Gly | Thr | Phe | Pro | Glu | Thr | Pro | Met | Val | | | | |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 290 | | 295 | | 300 | | | | | | | | | |
| Pro | Pro | Arg | Arg | Pro | Trp | Thr | Leu | Val | Asn | Trp | Leu | Phe | Trp | Ala |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Ser | Leu | Val | Leu | Tyr | Pro | Phe | Phe | Gln | Phe | Leu | Val | Ser | Met | Ile |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Arg | Ser | Gly | Ser | Ser | Leu | Thr | Leu | Ala | Ser | Phe | Ile | Leu | Val | Phe |
| | | | | 335 | | | | | 340 | | | | | 345 |
| Phe | Val | Ala | Ser | Val | Gly | Val | Arg | Trp | Met | Ile | Gly | Val | Thr | Glu |
| | | | | 350 | | | | | 355 | | | | | 360 |
| Ile | Asp | Lys | Gly | Ser | Ala | Tyr | Gly | Asn | Ser | Asp | Ser | Lys | Gln | Lys |
| | | | | 365 | | | | | 370 | | | | | 375 |

Leu Asn Asp

<210> 157

<211> 1849

<212> DNA

<213> Homo sapiens

<400> 157

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agaaatatat tccatgctat cagcttttta gcttttataa ttcttcaggc 250

gaagtaaattg agcaagcact gaagaaaata ttatcaaattg tcaaaaagaa 300

tgtggtaggt tggtacaaat tccgtcgtca ttcagatcag atcatgacgt 350

ttagagagag gctgcttcac aaaaacttgc aggagcattt ttcaaacca 400

gaccttggtt ttctgctatt aacaccaagt ataataacag aaagctgctc 450

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acaggggtacc tttagtgggt gccaatctgg gcatgtctga acaactgggt 550

tataaaactg tatcaggttc ctgtatgtcc actggtttta gccgagcagt 600

acaaacacac agctctaaat tttttgaaga agatggatcc ttaaaggagg 650

tacataagat aaatgaaatg tatgcttcat tacaagagga attaaagagt 700

atatgcaaaa aagtggaaga cagtgaacaa gcagtagata aactagtaaa 750

ggatgtaaac agattaaaac gagaaattga gaaaaggaga ggagcacaga 800

ttcaggcagc aagagagaag aacatccaaa aagaccctca ggagaacatt 850

tttctttgtc aggcatcag gacctttttt ccaaattctg aatttcttca 900

ttcatgtggt atgtctttaa aaaatagaca tgtttctaaa agtagctgta 950

099161-11504

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tgtagatac acaagacaaa cgatctaaag caaatactgg tagtagtaac 1150
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ttcttttagaa ttggaaaagt gagaccaggc acagtggctc acacctgtaa 1550
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tgaaaattta tctgagtcac taaaattctc cttaagtgat acttttttag 1750
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aaatttgcaa aacatcatct aaaattttaa aaaaaaaaaa aaaaaaaaaa 1849

<210> 158
<211> 409
<212> PRT
<213> Homo sapiens

<400> 158
Met Glu Gly Glu Ser Thr Ser Ala Val Leu Ser Gly Phe Val Leu
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Gly Ala Leu Ala Phe Gln His Leu Asn Thr Asp Ser Asp Thr Glu
20 25 30
Gly Phe Leu Leu Gly Glu Val Lys Gly Glu Ala Lys Asn Ser Ile
35 40 45
Thr Asp Ser Gln Met Asp Asp Val Glu Val Val Tyr Thr Ile Asp
50 55 60
Ile Gln Lys Tyr Ile Pro Cys Tyr Gln Leu Phe Ser Phe Tyr Asn
65 70 75
Ser Ser Gly Glu Val Asn Glu Gln Ala Leu Lys Lys Ile Leu Ser
80 85 90
Asn Val Lys Lys Asn Val Val Gly Trp Tyr Lys Phe Arg Arg His
95 100 105

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Asp | Gln | Ile | Met | Thr | Phe | Arg | Glu | Arg | Leu | Leu | His | Lys | Asn | 110 | 115 | 120 |
| Leu | Gln | Glu | His | Phe | Ser | Asn | Gln | Asp | Leu | Val | Phe | Leu | Leu | Leu | 125 | 130 | 135 |
| Thr | Pro | Ser | Ile | Ile | Thr | Glu | Ser | Cys | Ser | Thr | His | Arg | Leu | Glu | 140 | 145 | 150 |
| His | Ser | Leu | Tyr | Lys | Pro | Gln | Lys | Gly | Leu | Phe | His | Arg | Val | Pro | 155 | 160 | 165 |
| Leu | Val | Val | Ala | Asn | Leu | Gly | Met | Ser | Glu | Gln | Leu | Gly | Tyr | Lys | 170 | 175 | 180 |
| Thr | Val | Ser | Gly | Ser | Cys | Met | Ser | Thr | Gly | Phe | Ser | Arg | Ala | Val | 185 | 190 | 195 |
| Gln | Thr | His | Ser | Ser | Lys | Phe | Phe | Glu | Glu | Asp | Gly | Ser | Leu | Lys | 200 | 205 | 210 |
| Glu | Val | His | Lys | Ile | Asn | Glu | Met | Tyr | Ala | Ser | Leu | Gln | Glu | Glu | 215 | 220 | 225 |
| Leu | Lys | Ser | Ile | Cys | Lys | Lys | Val | Glu | Asp | Ser | Glu | Gln | Ala | Val | 230 | 235 | 240 |
| Asp | Lys | Leu | Val | Lys | Asp | Val | Asn | Arg | Leu | Lys | Arg | Glu | Ile | Glu | 245 | 250 | 255 |
| Lys | Arg | Arg | Gly | Ala | Gln | Ile | Gln | Ala | Ala | Arg | Glu | Lys | Asn | Ile | 260 | 265 | 270 |
| Gln | Lys | Asp | Pro | Gln | Glu | Asn | Ile | Phe | Leu | Cys | Gln | Ala | Leu | Arg | 275 | 280 | 285 |
| Thr | Phe | Phe | Pro | Asn | Ser | Glu | Phe | Leu | His | Ser | Cys | Val | Met | Ser | 290 | 295 | 300 |
| Leu | Lys | Asn | Arg | His | Val | Ser | Lys | Ser | Ser | Cys | Asn | Tyr | Asn | His | 305 | 310 | 315 |
| His | Leu | Asp | Val | Val | Asp | Asn | Leu | Thr | Leu | Met | Val | Glu | His | Thr | 320 | 325 | 330 |
| Asp | Ile | Pro | Glu | Ala | Ser | Pro | Ala | Ser | Thr | Pro | Gln | Ile | Ile | Lys | 335 | 340 | 345 |
| His | Lys | Ala | Leu | Asp | Leu | Asp | Asp | Arg | Trp | Gln | Phe | Lys | Arg | Ser | 350 | 355 | 360 |
| Arg | Leu | Leu | Asp | Thr | Gln | Asp | Lys | Arg | Ser | Lys | Ala | Asn | Thr | Gly | 365 | 370 | 375 |
| Ser | Ser | Asn | Gln | Asp | Lys | Ala | Ser | Lys | Met | Ser | Ser | Pro | Glu | Thr | 380 | 385 | 390 |
| Asp | Glu | Glu | Ile | Glu | Lys | Met | Lys | Gly | Phe | Gly | Glu | Tyr | Ser | Arg | 395 | 400 | 405 |
| Ser | Pro | Thr | Phe | | | | | | | | | | | | | | |

<210> 159
 <211> 2651
 <212> DNA
 <213> Homo sapiens

<400> 159
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 ttccccgcgt ccccgctcgc ccggccagtc agcttgccgg gttcgctgcc 200
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 accgttgctt gacgcgaggc ccagctctac ttttcgcccc gcgtctcctc 350
 cgcttgcctc cctcttccac caactccaac tccttctccc tccagctcca 400
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 aatccctgaa tgatatgttt gtgaagacat atggccattt atacatgcaa 900
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<210> 160

<211> 556

<212> PRT

<213> Homo sapiens

<400> 160

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Arg | Phe | Gly | Leu | Pro | Ala | Leu | Leu | Cys | Thr | Leu | Ala | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Leu | Ser | Ala | Ala | Leu | Leu | Ala | Ala | Glu | Leu | Lys | Ser | Lys | Ser | Cys |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Ser | Glu | Val | Arg | Arg | Leu | Tyr | Val | Ser | Lys | Gly | Phe | Asn | Lys | Asn |

| | 35 | 40 | 45 |
|---|-----|-----|-----|
| Asp Ala Pro Leu His Glu Ile Asn Gly Asp His Leu Lys Ile Cys | 50 | 55 | 60 |
| Pro Gln Gly Ser Thr Cys Cys Ser Gln Glu Met Glu Glu Lys Tyr | 65 | 70 | 75 |
| Ser Leu Gln Ser Lys Asp Asp Phe Lys Ser Val Val Ser Glu Gln | 80 | 85 | 90 |
| Cys Asn His Leu Gln Ala Val Phe Ala Ser Arg Tyr Lys Lys Phe | 95 | 100 | 105 |
| Asp Glu Phe Phe Lys Glu Leu Leu Glu Asn Ala Glu Lys Ser Leu | 110 | 115 | 120 |
| Asn Asp Met Phe Val Lys Thr Tyr Gly His Leu Tyr Met Gln Asn | 125 | 130 | 135 |
| Ser Glu Leu Phe Lys Asp Leu Phe Val Glu Leu Lys Arg Tyr Tyr | 140 | 145 | 150 |
| Val Val Gly Asn Val Asn Leu Glu Glu Met Leu Asn Asp Phe Trp | 155 | 160 | 165 |
| Ala Arg Leu Leu Glu Arg Met Phe Arg Leu Val Asn Ser Gln Tyr | 170 | 175 | 180 |
| His Phe Thr Asp Glu Tyr Leu Glu Cys Val Ser Lys Tyr Thr Glu | 185 | 190 | 195 |
| Gln Leu Lys Pro Phe Gly Asp Val Pro Arg Lys Leu Lys Leu Gln | 200 | 205 | 210 |
| Val Thr Arg Ala Phe Val Ala Ala Arg Thr Phe Ala Gln Gly Leu | 215 | 220 | 225 |
| Ala Val Ala Gly Asp Val Val Ser Lys Val Ser Val Val Asn Pro | 230 | 235 | 240 |
| Thr Ala Gln Cys Thr His Ala Leu Leu Lys Met Ile Tyr Cys Ser | 245 | 250 | 255 |
| His Cys Arg Gly Leu Val Thr Val Lys Pro Cys Tyr Asn Tyr Cys | 260 | 265 | 270 |
| Ser Asn Ile Met Arg Gly Cys Leu Ala Asn Gln Gly Asp Leu Asp | 275 | 280 | 285 |
| Phe Glu Trp Asn Asn Phe Ile Asp Ala Met Leu Met Val Ala Glu | 290 | 295 | 300 |
| Arg Leu Glu Gly Pro Phe Asn Ile Glu Ser Val Met Asp Pro Ile | 305 | 310 | 315 |
| Asp Val Lys Ile Ser Asp Ala Ile Met Asn Met Gln Asp Asn Ser | 320 | 325 | 330 |
| Val Gln Val Ser Gln Lys Val Phe Gln Gly Cys Gly Pro Pro Lys | 335 | 340 | 345 |
| Pro Leu Pro Ala Gly Arg Ile Ser Arg Ser Ile Ser Glu Ser Ala | | | |

| | | | | | |
|-----------------|---------------------|---------------------|-----|--|-----|
| | 350 | | 355 | | 360 |
| Phe Ser Ala Arg | Phe Arg Pro His His | Pro Glu Glu Arg Pro | Thr | | |
| | 365 | 370 | 375 | | |
| Thr Ala Ala Gly | Thr Ser Leu Asp Arg | Leu Val Thr Asp Val | Lys | | |
| | 380 | 385 | 390 | | |
| Glu Lys Leu Lys | Gln Ala Lys Lys Phe | Trp Ser Ser Leu Pro | Ser | | |
| | 395 | 400 | 405 | | |
| Asn Val Cys Asn | Asp Glu Arg Met Ala | Ala Gly Asn Gly Asn | Glu | | |
| | 410 | 415 | 420 | | |
| Asp Asp Cys Trp | Asn Gly Lys Gly Lys | Ser Arg Tyr Leu Phe | Ala | | |
| | 425 | 430 | 435 | | |
| Val Thr Gly Asn | Gly Leu Ala Asn Gln | Gly Asn Asn Pro Glu | Val | | |
| | 440 | 445 | 450 | | |
| Gln Val Asp Thr | Ser Lys Pro Asp Ile | Leu Ile Leu Arg Gln | Ile | | |
| | 455 | 460 | 465 | | |
| Met Ala Leu Arg | Val Met Thr Ser Lys | Met Lys Asn Ala Tyr | Asn | | |
| | 470 | 475 | 480 | | |
| Gly Asn Asp Val | Asp Phe Phe Asp Ile | Ser Asp Glu Ser Ser | Gly | | |
| | 485 | 490 | 495 | | |
| Glu Gly Ser Gly | Ser Gly Cys Glu Tyr | Gln Gln Cys Pro Ser | Glu | | |
| | 500 | 505 | 510 | | |
| Phe Asp Tyr Asn | Ala Thr Asp His Ala | Gly Lys Ser Ala Asn | Glu | | |
| | 515 | 520 | 525 | | |
| Lys Ala Asp Ser | Ala Gly Val Arg Pro | Gly Ala Gln Ala Tyr | Leu | | |
| | 530 | 535 | 540 | | |
| Leu Thr Val Phe | Cys Ile Leu Phe Leu | Val Met Gln Arg Glu | Trp | | |
| | 545 | 550 | 555 | | |

Arg

<210> 161

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 161

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<210> 162

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 162
tcacatcgat gggatccatg accg 24

<210> 163
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 163
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<210> 164
<211> 870
<212> DNA
<213> Homo sapiens

<400> 164
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ggaaccttcc attatattct tcaagcaact tacagctgca ccgacagttg 150
cgatgaaagt tctaattctt tccctcctcc tgttgctgcc actaatgctg 200
atgtccatgg tctctagcag cctgaatcca ggggtcgcca gaggccacag 250
ggaccgaggc caggcttcta ggagatggct ccaggaaggc ggccaagaat 300
gtgagtgcaa agattggttc ctgagagccc cgagaagaaa attcatgaca 350
gtgtctgggc tgccaaagaa gcagtgcgcc tgtgatcatt tcaagggcaa 400
tgtgaagaaa acaagacacc aaaggcacca cagaaagcca aacaagcatt 450
ccagagcctg ccagcaattt ctcaaacaat gtcagctaag aagctttgct 500
ctgcctttgt aggagctctg agcgcccact cttccaatta aacatttctca 550
gccaagaaga cagtgagcac acctaccaga cactcttctt ctcccacctc 600
actctcccac tgtaccaccc cctaaatcat tccagtgtc tcaaaaagca 650
tgtttttcaa gatcattttg tttgttgctc tctctagtgt cttcttctct 700
cgtcagtctt agcctgtgcc ctccccttac ccaggcttag gcttaattac 750
ctgaaagatt ccaggaaact gttagcttct agctagtgtc atttaacctt 800
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tcaaaaaaaaa aaaaaaaaaa 870

<210> 165
<211> 119
<212> PRT
<213> Homo sapiens

<400> 165
Met Lys Val Leu Ile Ser Ser Leu Leu Leu Leu Leu Pro Leu Met

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Leu Met Ser Met Val Ser Ser Ser Leu Asn Pro Gly Val Ala Arg | 20 | 25 | 30 |
| Gly His Arg Asp Arg Gly Gln Ala Ser Arg Arg Trp Leu Gln Glu | 35 | 40 | 45 |
| Gly Gly Gln Glu Cys Glu Cys Lys Asp Trp Phe Leu Arg Ala Pro | 50 | 55 | 60 |
| Arg Arg Lys Phe Met Thr Val Ser Gly Leu Pro Lys Lys Gln Cys | 65 | 70 | 75 |
| Pro Cys Asp His Phe Lys Gly Asn Val Lys Lys Thr Arg His Gln | 80 | 85 | 90 |
| Arg His His Arg Lys Pro Asn Lys His Ser Arg Ala Cys Gln Gln | 95 | 100 | 105 |
| Phe Leu Lys Gln Cys Gln Leu Arg Ser Phe Ala Leu Pro Leu | 110 | 115 | |

<210> 166
 <211> 551
 <212> DNA
 <213> Homo sapiens

<400> 166
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 ccagacgact cgggcaaaga cccaaagcca gacttcccca aattcctaag 150
 cctcctgggc acagagatca ttgagaatgc agtcgagttc atcctcogct 200
 ccatgtccag gagcacagga tttatggaat ttgatgataa tgaaggaaaa 250
 cattcatcaa agtgacatcc tcaggacaca cccatgtggc tcctggacaa 300
 tccaagagca gccaaatcct gcttttccag tttggctcca caagtctctc 350
 aggacagagc cctcaaagca actcccaacg agttctcagg attcaggctc 400
 tggcttcaac caaacagaac tcattttgaa caccctgact gcatttttgc 450
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<210> 167
 <211> 87
 <212> PRT
 <213> Homo sapiens

<400> 167
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 Val Leu Phe Leu Thr Cys Tyr Ala Asp Asp Lys Pro Asp Lys Pro

TCGTTT"TTTTT5550

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 20 | | 25 | | 30 | | | | | | | | | |
| Asp | Asp | Lys | Pro | Asp | Asp | Ser | Gly | Lys | Asp | Pro | Lys | Pro | Asp | Phe |
| | | | 35 | | | | | | 40 | | | | | 45 |
| Pro | Lys | Phe | Leu | Ser | Leu | Leu | Gly | Thr | Glu | Ile | Ile | Glu | Asn | Ala |
| | | | 50 | | | | | | 55 | | | | | 60 |
| Val | Glu | Phe | Ile | Leu | Arg | Ser | Met | Ser | Arg | Ser | Thr | Gly | Phe | Met |
| | | | 65 | | | | | | 70 | | | | | 75 |
| Glu | Phe | Asp | Asp | Asn | Glu | Gly | Lys | His | Ser | Ser | Lys | | | |
| | | | 80 | | | | | | 85 | | | | | |

<210> 168
<211> 1371
<212> DNA
<213> Homo sapiens

<400> 168
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gcagctgctg gtgctgcttc ttaccctgcc cctgcacctc atggctctgc 150
tggtgctgctg gcagccccctg tgcaaaagct acttccccta cctgatggcc 200
gtgctgactc ccaagagcaa ccgcaagatg gagagcaaga aacgggagct 250
cttcagccag ataaaggggc ttacaggagc ctccgggaaa gtggccctac 300
tgagagctggg ctgcggaacc ggagccaact ttcagttcta cccaccgggc 350
tgcaggggtca cctgcctaga cccaaatccc cactttgaga agttcctgac 400
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cagcctccaa ttagaacaag ccaccacca gcctatctat cttccactga 900
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gcctcccaat gttgtccctt tccttoggttc ccatggtaaa gctcctctcg 1150
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tcatggtgcc tgcacccctg ccaagccccc ctgaccctct ctccccacta 1250
ccaccttctt cctgagctgg gggcaccagg gagaatcaga gatgctgggg 1300
atgccagagc aagactcaaa gaggcagagg ttttgttctc aaatattttt 1350
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<210> 169

<211> 277

<212> PRT

<213> Homo sapiens

<400> 169

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Asp | Ile | Leu | Val | Pro | Leu | Leu | Gln | Leu | Leu | Val | Leu | Leu | Leu | 1 | 5 | 10 | 15 |
| Thr | Leu | Pro | Leu | His | Leu | Met | Ala | Leu | Leu | Gly | Cys | Trp | Gln | Pro | 20 | 25 | 30 | |
| Leu | Cys | Lys | Ser | Tyr | Phe | Pro | Tyr | Leu | Met | Ala | Val | Leu | Thr | Pro | 35 | 40 | 45 | |
| Lys | Ser | Asn | Arg | Lys | Met | Glu | Ser | Lys | Lys | Arg | Glu | Leu | Phe | Ser | 50 | 55 | 60 | |
| Gln | Ile | Lys | Gly | Leu | Thr | Gly | Ala | Ser | Gly | Lys | Val | Ala | Leu | Leu | 65 | 70 | 75 | |
| Glu | Leu | Gly | Cys | Gly | Thr | Gly | Ala | Asn | Phe | Gln | Phe | Tyr | Pro | Pro | 80 | 85 | 90 | |
| Gly | Cys | Arg | Val | Thr | Cys | Leu | Asp | Pro | Asn | Pro | His | Phe | Glu | Lys | 95 | 100 | 105 | |
| Phe | Leu | Thr | Lys | Ser | Met | Ala | Glu | Asn | Arg | His | Leu | Gln | Tyr | Glu | 110 | 115 | 120 | |
| Arg | Phe | Val | Val | Ala | Pro | Gly | Glu | Asp | Met | Arg | Gln | Leu | Ala | Asp | 125 | 130 | 135 | |
| Gly | Ser | Met | Asp | Val | Val | Val | Cys | Thr | Leu | Val | Leu | Cys | Ser | Val | 140 | 145 | 150 | |
| Gln | Ser | Pro | Arg | Lys | Val | Leu | Gln | Glu | Val | Arg | Arg | Val | Leu | Arg | 155 | 160 | 165 | |
| Pro | Gly | Gly | Val | Leu | Phe | Phe | Trp | Glu | His | Val | Ala | Glu | Pro | Tyr | 170 | 175 | 180 | |
| Gly | Ser | Trp | Ala | Phe | Met | Trp | Gln | Gln | Val | Phe | Glu | Pro | Thr | Trp | 185 | 190 | 195 | |
| Lys | His | Ile | Gly | Asp | Gly | Cys | Cys | Leu | Thr | Arg | Glu | Thr | Trp | Lys | 200 | 205 | 210 | |
| Asp | Leu | Glu | Asn | Ala | Gln | Phe | Ser | Glu | Ile | Gln | Met | Glu | Arg | Gln | 215 | 220 | 225 | |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Pro | Pro | Leu | Lys | Trp | Leu | Pro | Val | Gly | Pro | His | Ile | Met | Gly |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Ala | Val | Lys | Gln | Ser | Phe | Pro | Ser | Ser | Lys | Ala | Leu | Ile | Cys |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Ser | Phe | Pro | Ser | Leu | Gln | Leu | Glu | Gln | Ala | Thr | His | Gln | Pro | Ile |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Tyr | Leu | Pro | Leu | Arg | Gly | Thr | | | | | | | | |
| | | | | 275 | | | | | | | | | | |

<210> 170
 <211> 1621
 <212> DNA
 <213> Homo sapiens

<400> 170
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 agcttctgta gataagggtt aaaaactaat atttatatga cagaagaaaa 150
 agatgtcatt ccgtaaagta aacatcatca tcttggtcct ggctgttgct 200
 ctcttcttac tggttttgca ccataacttc ctcagcttga gcagtttggt 250
 aaggaatgag gttacagatt caggaattgt agggcctcaa cctatagact 300
 ttgtcccaaa tgctctccga catgcagtag atgggagaca agaggagatt 350
 cctgtggtca tcgctgcac tgaagacagg cttggggggg ccattgcagc 400
 tataaacagc attcagcaca acactogctc caatgtgatt ttctacattg 450
 ttactctcaa caatacagca gaccatctcc ggtcctggct caacagtgat 500
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 gccatataca tggatgatga tgtaattgtg caagggtgata ttcttgccct 700
 ttacaatata gactgaagc caggacatgc agctgcattt tcagaagatt 750
 gtgattcagc ctctactaaa gttgtcatcc gtggagcagg aaaccagtac 800
 aattacattg gctatcttga ctataaaaag gaaagaattc gtaagctttc 850
 catgaaagcc agcacttgct catttaatcc tggagttttt gttgcaaacc 900
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 cacaacacct cctctgctta tcgtatttta tcaacagcac tctaccatcg 1050
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 tcacctcagt ttgtaaaggc tgccaagtta ctccattgga atggacattt 1150

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<210> 171

<211> 371

<212> PRT

<213> Homo sapiens

<400> 171

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Phe | Arg | Lys | Val | Asn | Ile | Ile | Ile | Leu | Val | Leu | Ala | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Ala | Leu | Phe | Leu | Leu | Val | Leu | His | His | Asn | Phe | Leu | Ser | Leu | Ser |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Ser | Leu | Leu | Arg | Asn | Glu | Val | Thr | Asp | Ser | Gly | Ile | Val | Gly | Pro |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Gln | Pro | Ile | Asp | Phe | Val | Pro | Asn | Ala | Leu | Arg | His | Ala | Val | Asp |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gly | Arg | Gln | Glu | Glu | Ile | Pro | Val | Val | Ile | Ala | Ala | Ser | Glu | Asp |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Arg | Leu | Gly | Gly | Ala | Ile | Ala | Ala | Ile | Asn | Ser | Ile | Gln | His | Asn |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Thr | Arg | Ser | Asn | Val | Ile | Phe | Tyr | Ile | Val | Thr | Leu | Asn | Asn | Thr |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Ala | Asp | His | Leu | Arg | Ser | Trp | Leu | Asn | Ser | Asp | Ser | Leu | Lys | Ser |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | Tyr | Lys | Ile | Val | Asn | Phe | Asp | Pro | Lys | Leu | Leu | Glu | Gly |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Lys | Val | Lys | Glu | Asp | Pro | Asp | Gln | Gly | Glu | Ser | Met | Lys | Pro | Leu |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Thr | Phe | Ala | Arg | Phe | Tyr | Leu | Pro | Ile | Leu | Val | Pro | Ser | Ala | Lys |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Lys | Ala | Ile | Tyr | Met | Asp | Asp | Asp | Val | Ile | Val | Gln | Gly | Asp | Ile |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Leu | Ala | Leu | Tyr | Asn | Thr | Ala | Leu | Lys | Pro | Gly | His | Ala | Ala | Ala |

| | | | | | |
|-----------------|---------------------|---------------------|-----|--|-----|
| | 185 | | 190 | | 195 |
| Phe Ser Glu Asp | Cys Asp Ser Ala Ser | Thr Lys Val Val Ile | Arg | | |
| | 200 | | 210 | | |
| Gly Ala Gly Asn | Gln Tyr Asn Tyr Ile | Gly Tyr Leu Asp Tyr | Lys | | |
| | 215 | | 225 | | |
| Lys Glu Arg Ile | Arg Lys Leu Ser Met | Lys Ala Ser Thr Cys | Ser | | |
| | 230 | | 240 | | |
| Phe Asn Pro Gly | Val Phe Val Ala Asn | Leu Thr Glu Trp Lys | Arg | | |
| | 245 | | 255 | | |
| Gln Asn Ile Thr | Asn Gln Leu Glu Lys | Trp Met Lys Leu Asn | Val | | |
| | 260 | | 270 | | |
| Glu Glu Gly Leu | Tyr Ser Arg Thr Leu | Ala Gly Ser Ile Thr | Thr | | |
| | 275 | | 285 | | |
| Pro Pro Leu Leu | Ile Val Phe Tyr Gln | Gln His Ser Thr Ile | Asp | | |
| | 290 | | 300 | | |
| Pro Met Trp Asn | Val Arg His Leu Gly | Ser Ser Ala Gly Lys | Arg | | |
| | 305 | | 315 | | |
| Tyr Ser Pro Gln | Phe Val Lys Ala Ala | Lys Leu Leu His Trp | Asn | | |
| | 320 | | 330 | | |
| Gly His Leu Lys | Pro Trp Gly Arg Thr | Ala Ser Tyr Thr Asp | Val | | |
| | 335 | | 345 | | |
| Trp Glu Lys Trp | Tyr Ile Pro Asp Pro | Thr Gly Lys Phe Asn | Leu | | |
| | 350 | | 360 | | |
| Ile Arg Arg Tyr | Thr Glu Ile Ser Asn | Ile Lys | | | |
| | 365 | | 370 | | |

<210> 172

<211> 585

<212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> 71, 76, 86, 91, 162, 220, 269, 281

<223> unknown base

<400> 172

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catcgctgca tntgaagaca ggcttggggg ggccattgca gctataaaca 200

gcattcagca caacactcgn tccaatgtga ttttctacat tggtactctc 250

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gcaaggttct acttgccaat tctggttccc agcgcaaaga aggccatata 450
catggatgat gatgtaattg tgcaaggtga tattcttgcc ctttacaata 500
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<210> 173

<211> 1866

<212> DNA

<213> Homo sapiens

<400> 173

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aacgcgggcg gccagacaac gggctgggct ccggggcctg cggcgcgggc 150
gctgagctgg cagggcgggt cggggcgcg gctgcatccg catctcctcc 200
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gggggccatt gcagctataa acagcattca gcacaacact cgctccaatg 650
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tgtgtcagct aggtaaagat gacaaactgc cctgtctggc agtcagcttc 1650
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tttcttacta caatgctgaa tgactggaaa gaagaactga tatggctagt 1750
tcagctagct ggtacagata attcaaaact gctgttggtt ttaattttgt 1800
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aaaaaaaaa aaaaaa 1866

<210> 174

<211> 823

<212> DNA

<213> Homo sapiens

<400> 174

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gctggaccca gcggcccaga gtctagccag cttggctcca ataggagctc 550
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gagccagggc catctggact atgctccatc ccaagggcca agggtcaggg 650
gccgggtcca ctctttccct aggetgagca cctctaggcc ctctaggttg 700
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<210> 175

<211> 87

<212> PRT

<213> Homo sapiens

<400> 175

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Asn Gly Leu Val Gly Phe Leu Leu Leu Leu Leu Trp Val Ile Leu
20 25 30

Cys Trp Ala Cys His Ser Arg Leu Pro Thr Leu Thr Leu Ser Leu
35 40 45

Asn Pro Val Pro Thr Pro Ala Leu Ala Pro Val Leu Arg Arg Pro
50 55 60

His His Pro Arg Ser Pro Ala Met Lys Ala Ala Thr Cys Cys Ser
65 70 75

Pro Glu Gly Pro Trp Pro Ser Leu Glu Pro Arg Thr
80 85

<210> 176

<211> 1660

<212> DNA

<213> Homo sapiens

<400> 176

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tgtccctcaa acacctgagt gctactccct atttgcatct gttttgataa 150

atgatgttga caccctccac cgaattctaa gtggaatcat gtcggaaga 200

gatacaatcc ttggcctgtg taccctcgca ttagccttgt ctttggccat 250

gatgtttacc ttcagattca tcaccacct tctggttcac attttcattt 300

cattggttat ttggggattg ttgtttgtct gcggtgtttt atggtggctg 350

tattatgact ataccaacga cctcagcata gaattggaca cagaaaggga 400

aaatatgaag tgcgtgctgg gggtttgctat cgtatccaca ggcatcacgg 450

cagtgcgtgct cgtcttgatt ttgtttctca gaaagagaat aaaattgaca 500

gttgagcttt tccaaatcac aaataaagcc atcagcagtg ctcccttcct 550

gctgttccag ccaactgtgga catttgccat cctcatcttc ttctgggtcc 600

tctgggtggc tgtgctgctg agcctgggaa ctgcaggagc tgcccagggt 650

atggaaggcg gccaaagtga atataagccc ctttcgggca ttcggtacat 700

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<210> 177

<211> 445

<212> PRT

<213> Homo sapiens

<400> 177

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Gly | Arg | Asp | Thr | Ile | Leu | Gly | Leu | Cys | Ile | Leu | Ala | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Ala | Leu | Ser | Leu | Ala | Met | Met | Phe | Thr | Phe | Arg | Phe | Ile | Thr | Thr |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Leu | Leu | Val | His | Ile | Phe | Ile | Ser | Leu | Val | Ile | Leu | Gly | Leu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Phe | Val | Cys | Gly | Val | Leu | Trp | Trp | Leu | Tyr | Tyr | Asp | Tyr | Thr | Asn |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Asp | Leu | Ser | Ile | Glu | Leu | Asp | Thr | Glu | Arg | Glu | Asn | Met | Lys | Cys |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Val | Leu | Gly | Phe | Ala | Ile | Val | Ser | Thr | Gly | Ile | Thr | Ala | Val | Leu |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Leu | Val | Leu | Ile | Phe | Val | Leu | Arg | Lys | Arg | Ile | Lys | Leu | Thr | Val |

| | 95 | 100 | 105 |
|-----------------|---------------------|---------------------|-----|
| Glu Leu Phe Gln | Ile Thr Asn Lys Ala | Ile Ser Ser Ala Pro | Phe |
| | 110 | 115 | 120 |
| Leu Leu Phe Gln | Pro Leu Trp Thr Phe | Ala Ile Leu Ile Phe | Phe |
| | 125 | 130 | 135 |
| Trp Val Leu Trp | Val Ala Val Leu Leu | Ser Leu Gly Thr Ala | Gly |
| | 140 | 145 | 150 |
| Ala Ala Gln Val | Met Glu Gly Gly Gln | Val Glu Tyr Lys Pro | Leu |
| | 155 | 160 | 165 |
| Ser Gly Ile Arg | Tyr Met Trp Ser Tyr | His Leu Ile Gly Leu | Ile |
| | 170 | 175 | 180 |
| Trp Thr Ser Glu | Phe Ile Leu Ala Cys | Gln Gln Met Thr Ile | Ala |
| | 185 | 190 | 195 |
| Gly Ala Val Val | Thr Cys Tyr Phe Asn | Arg Ser Lys Asn Asp | Pro |
| | 200 | 205 | 210 |
| Pro Asp His Pro | Ile Leu Ser Ser Leu | Ser Ile Leu Phe Phe | Tyr |
| | 215 | 220 | 225 |
| His Gln Gly Thr | Val Val Lys Gly Ser | Phe Leu Ile Ser Val | Val |
| | 230 | 235 | 240 |
| Arg Ile Pro Arg | Ile Ile Val Met Tyr | Met Gln Asn Ala Leu | Lys |
| | 245 | 250 | 255 |
| Glu Gln Gln His | Gly Ala Leu Ser Arg | Tyr Leu Phe Arg Cys | Cys |
| | 260 | 265 | 270 |
| Tyr Cys Cys Phe | Trp Cys Leu Asp Lys | Tyr Leu Leu His Leu | Asn |
| | 275 | 280 | 285 |
| Gln Asn Ala Tyr | Thr Thr Thr Ala Ile | Asn Gly Thr Asp Phe | Cys |
| | 290 | 295 | 300 |
| Thr Ser Ala Lys | Asp Ala Phe Lys Ile | Leu Ser Lys Asn Ser | Ser |
| | 305 | 310 | 315 |
| His Phe Thr Ser | Ile Asn Cys Phe Gly | Asp Phe Ile Ile Phe | Leu |
| | 320 | 325 | 330 |
| Gly Lys Val Leu | Val Val Cys Phe Thr | Val Phe Gly Gly Leu | Met |
| | 335 | 340 | 345 |
| Ala Phe Asn Tyr | Asn Arg Ala Phe Gln | Val Trp Ala Val Pro | Leu |
| | 350 | 355 | 360 |
| Leu Leu Val Ala | Phe Phe Ala Tyr Leu | Val Ala His Ser Phe | Leu |
| | 365 | 370 | 375 |
| Ser Val Phe Glu | Thr Val Leu Asp Ala | Leu Phe Leu Cys Phe | Ala |
| | 380 | 385 | 390 |
| Val Asp Leu Glu | Thr Asn Asp Gly Ser | Ser Glu Lys Pro Tyr | Phe |
| | 395 | 400 | 405 |
| Met Asp Gln Glu | Phe Leu Ser Phe Val | Lys Arg Ser Asn Lys | Leu |

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<210> 179

<211> 678
 <212> PRT
 <213> Homo sapiens

<400> 179

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Arg | Thr | Val | Val | Leu | Thr | Met | Lys | Ala | Ser | Val | Ile | Glu | Met | 1 | 5 | 10 | 15 |
| Phe | Leu | Val | Leu | Leu | Val | Thr | Gly | Val | His | Ser | Asn | Lys | Glu | Thr | 20 | 25 | 30 | |
| Ala | Lys | Lys | Ile | Lys | Arg | Pro | Lys | Phe | Thr | Val | Pro | Gln | Ile | Asn | 35 | 40 | 45 | |
| Cys | Asp | Val | Lys | Ala | Gly | Lys | Ile | Ile | Asp | Pro | Glu | Phe | Ile | Val | 50 | 55 | 60 | |
| Lys | Cys | Pro | Ala | Gly | Cys | Gln | Asp | Pro | Lys | Tyr | His | Val | Tyr | Gly | 65 | 70 | 75 | |
| Thr | Asp | Val | Tyr | Ala | Ser | Tyr | Ser | Ser | Val | Cys | Gly | Ala | Ala | Val | 80 | 85 | 90 | |
| His | Ser | Gly | Val | Leu | Asp | Asn | Ser | Gly | Gly | Lys | Ile | Leu | Val | Arg | 95 | 100 | 105 | |
| Lys | Val | Ala | Gly | Gln | Ser | Gly | Tyr | Lys | Gly | Ser | Tyr | Ser | Asn | Gly | 110 | 115 | 120 | |
| Val | Gln | Ser | Leu | Ser | Leu | Pro | Arg | Trp | Arg | Glu | Ser | Phe | Ile | Val | 125 | 130 | 135 | |
| Leu | Glu | Ser | Lys | Pro | Lys | Lys | Gly | Val | Thr | Tyr | Pro | Ser | Ala | Leu | 140 | 145 | 150 | |
| Thr | Tyr | Ser | Ser | Ser | Lys | Ser | Pro | Ala | Ala | Gln | Ala | Gly | Glu | Thr | 155 | 160 | 165 | |
| Thr | Lys | Ala | Tyr | Gln | Arg | Pro | Pro | Ile | Pro | Gly | Thr | Thr | Ala | Gln | 170 | 175 | 180 | |
| Pro | Val | Thr | Leu | Met | Gln | Leu | Leu | Ala | Val | Thr | Val | Ala | Val | Ala | 185 | 190 | 195 | |
| Thr | Pro | Thr | Thr | Leu | Pro | Arg | Pro | Ser | Pro | Ser | Ala | Ala | Ser | Thr | 200 | 205 | 210 | |
| Thr | Ser | Ile | Pro | Arg | Pro | Gln | Ser | Val | Gly | His | Arg | Ser | Gln | Glu | 215 | 220 | 225 | |
| Met | Asp | Leu | Trp | Ser | Thr | Ala | Thr | Tyr | Thr | Ser | Ser | Gln | Asn | Arg | 230 | 235 | 240 | |
| Pro | Arg | Ala | Asp | Pro | Gly | Ile | Gln | Arg | Gln | Asp | Pro | Ser | Gly | Ala | 245 | 250 | 255 | |
| Ala | Phe | Gln | Lys | Pro | Val | Gly | Ala | Asp | Val | Ser | Leu | Gly | Leu | Val | 260 | 265 | 270 | |
| Pro | Lys | Glu | Glu | Leu | Ser | Thr | Gln | Ser | Leu | Glu | Pro | Val | Ser | Leu | 275 | 280 | 285 | |
| Gly | Asp | Pro | Asn | Cys | Lys | Ile | Asp | Leu | Ser | Phe | Leu | Ile | Asp | Gly | | | | |

| | 290 | 295 | 300 |
|-----------------|-------------------------|-------------------------|-------------------------|
| Ser Thr Ser Ile | Gly 305 | Lys Arg Arg Phe Arg 310 | Ile Gln Lys Gln Leu 315 |
| Leu Ala Asp Val | Ala 320 | Gln Ala Leu Asp Ile 325 | Gly Pro Ala Gly Pro 330 |
| Leu Met Gly Val | Val 335 | Gln Tyr Gly Asp Asn 340 | Pro Ala Thr His Phe 345 |
| Asn Leu Lys Thr | His 350 | Thr Asn Ser Arg Asp 355 | Leu Lys Thr Ala Ile 360 |
| Glu Lys Ile Thr | Gln 365 | Arg Gly Gly Leu Ser 370 | Asn Val Gly Arg Ala 375 |
| Ile Ser Phe Val | Thr 380 | Lys Asn Phe Phe Ser 385 | Lys Ala Asn Gly Asn 390 |
| Arg Ser Gly Ala | Pro 395 | Asn Val Val Val Val 400 | Met Val Asp Gly Trp 405 |
| Pro Thr Asp Lys | Val 410 | Glu Glu Ala Ser Arg 415 | Leu Ala Arg Glu Ser 420 |
| Gly Ile Asn Ile | Phe 425 | Phe Ile Thr Ile Glu 430 | Gly Ala Ala Glu Asn 435 |
| Glu Lys Gln Tyr | Val 440 | Val Glu Pro Asn Phe 445 | Ala Asn Lys Ala Val 450 |
| Cys Arg Thr Asn | Gly 455 | Phe Tyr Ser Leu His 460 | Val Gln Ser Trp Phe 465 |
| Gly Leu His Lys | Thr 470 | Leu Gln Pro Leu Val 475 | Lys Arg Val Cys Asp 480 |
| Thr Asp Arg Leu | Ala 485 | Cys Ser Lys Thr Cys 490 | Leu Asn Ser Ala Asp 495 |
| Ile Gly Phe Val | Ile 500 | Asp Gly Ser Ser Ser 505 | Val Gly Thr Gly Asn 510 |
| Phe Arg Thr Val | Leu 515 | Gln Phe Val Thr Asn 520 | Leu Thr Lys Glu Phe 525 |
| Glu Ile Ser Asp | Thr 530 | Asp Thr Arg Ile Gly 535 | Ala Val Gln Tyr Thr 540 |
| Tyr Glu Gln Arg | Leu 545 | Glu Phe Gly Phe Asp 550 | Lys Tyr Ser Ser Lys 555 |
| Pro Asp Ile Leu | Asn 560 | Ala Ile Lys Arg Val 565 | Gly Tyr Trp Ser Gly 570 |
| Gly Thr Ser Thr | Gly 575 | Ala Ala Ile Asn Phe 580 | Ala Leu Glu Gln Leu 585 |
| Phe Lys Lys Ser | Lys 590 | Pro Asn Lys Arg Lys 595 | Leu Met Ile Leu Ile 600 |
| Thr Asp Gly Arg | Ser Tyr Asp Asp Val Arg | Ile Pro Ala Met Ala | |

| | | | | | |
|-----------------|-------------------------|-------------------------|-----|-----|-----|
| | 605 | | 610 | | 615 |
| Ala His Leu Lys | Gly Val Ile Thr Tyr | Ala Ile Gly Val Ala Trp | | | |
| | 620 | 625 | | 630 | |
| Ala Ala Gln Glu | Glu Leu Glu Val Ile | Ala Thr His Pro Ala Arg | | | |
| | 635 | 640 | | 645 | |
| Asp His Ser Phe | Phe Val Asp Glu Phe | Asp Asn Leu His Gln Tyr | | | |
| | 650 | 655 | | 660 | |
| Val Pro Arg Ile | Ile Gln Asn Ile Cys Thr | Glu Phe Asn Ser Gln | | | |
| | 665 | 670 | | 675 | |
| Pro Arg Asn | | | | | |

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 <211> 1759
 <212> DNA
 <213> Homo sapiens

<400> 180
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 gcaggcatcg gggctggcgt ggactcctac tttgagtact tggtgaaagg 750
 agccatcctg cttcaggata agaagctcat ggccatgttc ctagagtata 800
 acaaagccat ccggaactac acccgcttcg atgactggta cctgtggggt 850
 cagatgtaca aggggactgt gtccatgcca gtcttcagc ccttgagggc 900
 ctactggcct ggtcttcaga gcctcattgg agacattgac aatgccatga 950
 ggaccttcct caactactac actgtatgga agcagtttgg ggggctcccg 1000

gaattctaca acattcctca gggatacaca gtggagaagc gagagggcta 1050
 cccacttcgg ccagaactta ttgaaagcgc aatgtacctc taccgtgcc 1100
 cggggggatcc caccctccta gaactcggaa gagatgctgt ggaatccatt 1150
 gaaaaaatca gcaaggtgga gtgcggattt gcaacaatca aagatctgcg 1200
 agaccacaag ctggacaacc gcatggagtc gttcttcctg gccgagactg 1250
 tgaaatacct ctacctcctg tttgacccaa ccaacttcat ccacaacaat 1300
 ggggtccacct tcgacgcggt gatcaccccc tatggggagt gcatacctggg 1350
 ggctgggggg tacatcttca acacagaagc tcaccccatc gaccttgccg 1400
 ccctgcactg ctgccagagg ctgaaggaag agcagtggga ggtggaggac 1450
 ttgatgaggg aattctactc tctcaaacgg agcaggtcga aatttcagaa 1500
 aaacactgtt agttcggggc catgggaacc tccagcaagg ccaggaacac 1550
 tcttctcacc agaaaaccat gaccaggcaa gggagaggaa gcctgccaaa 1600
 cagaaggtcc cacttctcag ctgccccagt cagcccttca cctccaagtt 1650
 ggcattactg ggacaggttt tcctagactc ctcataacca ctggataatt 1700
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 atcataaaa 1759

<210> 181
 <211> 541
 <212> PRT
 <213> Homo sapiens

<400> 181
 Met Pro Phe Arg Leu Leu Ile Pro Leu Gly Leu Leu Cys Ala Leu
 1 5 10 15
 Leu Pro Gln His His Gly Ala Pro Gly Pro Asp Gly Ser Ala Pro
 20 25 30
 Asp Pro Ala His Tyr Ser Phe Ser Leu Thr Leu Ile Asp Ala Leu
 35 40 45
 Asp Thr Leu Leu Ile Leu Gly Asn Val Ser Glu Phe Gln Arg Val
 50 55 60
 Val Glu Val Leu Gln Asp Ser Val Asp Phe Asp Ile Asp Val Asn
 65 70 75
 Ala Ser Val Phe Glu Thr Asn Ile Arg Val Val Gly Gly Leu Leu
 80 85 90
 Ser Ala His Leu Leu Ser Lys Lys Ala Gly Val Glu Val Glu Ala
 95 100 105
 Gly Trp Pro Cys Ser Gly Pro Leu Leu Arg Met Ala Glu Glu Ala
 110 115 120
 Ala Arg Lys Leu Leu Pro Ala Phe Gln Thr Pro Thr Gly Met Pro

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| | | | | 125 | | | | | 130 | | | | | 135 |
| Tyr | Gly | Thr | Val | Asn 140 | Leu | Leu | His | Gly | Val 145 | Asn | Pro | Gly | Glu | Thr 150 |
| Pro | Val | Thr | Cys | Thr 155 | Ala | Gly | Ile | Gly | Thr 160 | Phe | Ile | Val | Glu | Phe 165 |
| Ala | Thr | Leu | Ser | Ser 170 | Leu | Thr | Gly | Asp | Pro 175 | Val | Phe | Glu | Asp | Val 180 |
| Ala | Arg | Val | Ala | Leu 185 | Met | Arg | Leu | Trp | Glu 190 | Ser | Arg | Ser | Asp | Ile 195 |
| Gly | Leu | Val | Gly | Asn 200 | His | Ile | Asp | Val | Leu 205 | Thr | Gly | Lys | Trp | Val 210 |
| Ala | Gln | Asp | Ala | Gly 215 | Ile | Gly | Ala | Gly | Val 220 | Asp | Ser | Tyr | Phe | Glu 225 |
| Tyr | Leu | Val | Lys | Gly 230 | Ala | Ile | Leu | Leu | Gln 235 | Asp | Lys | Lys | Leu | Met 240 |
| Ala | Met | Phe | Leu | Glu 245 | Tyr | Asn | Lys | Ala | Ile 250 | Arg | Asn | Tyr | Thr | Arg 255 |
| Phe | Asp | Asp | Trp | Tyr 260 | Leu | Trp | Val | Gln | Met 265 | Tyr | Lys | Gly | Thr | Val 270 |
| Ser | Met | Pro | Val | Phe 275 | Gln | Ser | Leu | Glu | Ala 280 | Tyr | Trp | Pro | Gly | Leu 285 |
| Gln | Ser | Leu | Ile | Gly 290 | Asp | Ile | Asp | Asn | Ala 295 | Met | Arg | Thr | Phe | Leu 300 |
| Asn | Tyr | Tyr | Thr | Val 305 | Trp | Lys | Gln | Phe | Gly 310 | Gly | Leu | Pro | Glu | Phe 315 |
| Tyr | Asn | Ile | Pro | Gln 320 | Gly | Tyr | Thr | Val | Glu 325 | Lys | Arg | Glu | Gly | Tyr 330 |
| Pro | Leu | Arg | Pro | Glu 335 | Leu | Ile | Glu | Ser | Ala 340 | Met | Tyr | Leu | Tyr | Arg 345 |
| Ala | Thr | Gly | Asp | Pro 350 | Thr | Leu | Leu | Glu | Leu 355 | Gly | Arg | Asp | Ala | Val 360 |
| Glu | Ser | Ile | Glu | Lys 365 | Ile | Ser | Lys | Val | Glu 370 | Cys | Gly | Phe | Ala | Thr 375 |
| Ile | Lys | Asp | Leu | Arg 380 | Asp | His | Lys | Leu | Asp 385 | Asn | Arg | Met | Glu | Ser 390 |
| Phe | Phe | Leu | Ala | Glu 395 | Thr | Val | Lys | Tyr | Leu 400 | Tyr | Leu | Leu | Phe | Asp 405 |
| Pro | Thr | Asn | Phe | Ile 410 | His | Asn | Asn | Gly | Ser 415 | Thr | Phe | Asp | Ala | Val 420 |
| Ile | Thr | Pro | Tyr | Gly 425 | Glu | Cys | Ile | Leu | Gly 430 | Ala | Gly | Gly | Tyr | Ile 435 |
| Phe | Asn | Thr | Glu | Ala | His | Pro | Ile | Asp | Leu | Ala | Ala | Leu | His | Cys |

| | | | | | |
|-----------------|---------------------|---------------------|-----|--|-----|
| | 440 | | 445 | | 450 |
| Cys Gln Arg Leu | Lys Glu Glu Gln Trp | Glu Val Glu Asp Leu | Met | | |
| | 455 | 460 | 465 | | |
| Arg Glu Phe Tyr | Ser Leu Lys Arg Ser | Arg Ser Lys Phe Gln | Lys | | |
| | 470 | 475 | 480 | | |
| Asn Thr Val Ser | Ser Gly Pro Trp Glu | Pro Pro Ala Arg Pro | Gly | | |
| | 485 | 490 | 495 | | |
| Thr Leu Phe Ser | Pro Glu Asn His Asp | Gln Ala Arg Glu Arg | Lys | | |
| | 500 | 505 | 510 | | |
| Pro Ala Lys Gln | Lys Val Pro Leu Leu | Ser Cys Pro Ser Gln | Pro | | |
| | 515 | 520 | 525 | | |
| Phe Thr Ser Lys | Leu Ala Leu Leu Gly | Gln Val Phe Leu Asp | Ser | | |
| | 530 | 535 | 540 | | |

Ser

<210> 182
 <211> 2056
 <212> DNA
 <213> Homo sapiens

<400> 182
 aaagttacat tttctctgga actctcctag gccactccct gctgatgcaa 50
 catctgggtt tgggcagaaa ggaggggtgt tggagcccg ccctttctga 100
 gcttcctggg ccggctctag aacaattcag gcttcgctgc gactcagacc 150
 tcagctccaa catatgcatt ctgaagaaag atggctgaga tggacagaat 200
 gctttatattt ggaaagaaac aatgttctag gtcaaactga gtctaccaa 250
 tgcagacttt cacaatgggt ctagaagaaa tctggacaag tcttttcatg 300
 tggtttttct acgcattgat tccatgtttg ctacagatg aagtggccat 350
 tctgcctgcc cctcagaacc tctctgtact ctcaaccaac atgaagcatc 400
 tcttgatgtg gagcccagt atcgcgctg gagaaacagt gtactattct 450
 gtcgaatacc agggggagta cgagagcctg tacacgagcc acatctggat 500
 ccccagcagc tgggtgctcac tcaactgaagg tctgagtgt gatgtcactg 550
 atgacatcac ggccactgtg ccatacaacc ttogtgtcag ggccacattg 600
 ggctcacaga cctcagcctg gagcatcctg aagcatccct ttaatagaaa 650
 ctcaaccatc cttacccgac ctgggatgga gatcaccaa gatggcttcc 700
 acctggttat tgagctggag gacctggggc ccagtttga gttccttgtg 750
 gcctactgga ggaggagacc tggtgccgag gaacatgtca aaatggtgag 800
 gagtgggggt attccagtgc acctagaaac catggagcca ggggctgcat 850

actgtgtgaa ggcccagaca ttctgtgaagg ccattgggag gtacagcgcc 900
 ttcagccaga cagaatgtgt ggaggtgcaa ggagaggcca ttcccctggt 950
 actggccctg tttgcctttg ttggcttcat gctgacctt gtggtcgtgc 1000
 cactgttcgt ctggaaaatg ggccggctgc tccagtactc ctggtgcccc 1050
 gtggtggtcc tcccagacac cttgaaaata accaattcac cccagaagtt 1100
 aatcagctgc agaaggagg aggtggatgc ctgtgccacg gctgtgatgt 1150
 ctctgagga actcctcagg gcctggatct cataggtttg cggaagggcc 1200
 caggtgaagc cgagaacctg gtctgcatga catggaaacc atgaggggac 1250
 aagttgtgtt tctgttttcc gccacggaca agggatgaga gaagtaggaa 1300
 gagcctgttg tctacaagtc tagaagcaac catcagaggc aggggtggtt 1350
 gtctaacaga aactgactg aggcctaggg gatgtgacct ctgactggg 1400
 ggctgccact tgctggctga gcaaccctgg gaaaagtgc ttcacccctt 1450
 cggctctaag ttttctcatc tgtaatgggg gaattacct cacacctgct 1500
 aaacacacac acacagagtc tctctctata tatacacacg tacacataaa 1550
 tacaccagc acttgcaagg ctagagggaa actggtgaca ctctacagtc 1600
 tgactgattc agtgtttctg gagagcagga cataaatgta tgatgagaat 1650
 gatcaaggac tctacacact ggggtggcttg gagagccac tttcccagaa 1700
 taatccttga gagaaaagga atcatgggag caatggtgtt gagttcactt 1750
 caagccaat gccggtgcag aggggaatgg cttagcgagc tctacagtag 1800
 gtgacctgga ggaaggcac agccacactg aaaatgggat gtgcatgaac 1850
 acggaggatc catgaactac tgtaaagtgt tgacagtgtg tgcacactgc 1900
 agacagcagg tgaaatgtat gtgtgcaatg cgacgagaat gcagaagtca 1950
 gtaacatgtg catgtttgtt gtgctcctt tttctgttg taaagtacag 2000
 aattcagcaa ataaaaagg ccaccctggc caaaagcgggt aaaaaaaaaa 2050
 aaaaaa 2056

<210> 183
 <211> 311
 <212> PRT
 <213> Homo sapiens

<220>
 <221> Signal peptide
 <222> 1-29
 <223> Signal peptide

<220>
 <221> N-glycosylation sites
 <222> 40-43, 134-137

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gln | Gly | Glu | Ala | Ile | Pro | Leu | Val | Leu | Ala | Leu | Phe | Ala | Phe |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Gly | Phe | Met | Leu | Ile | Leu | Val | Val | Val | Pro | Leu | Phe | Val | Trp |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Lys | Met | Gly | Arg | Leu | Leu | Gln | Tyr | Ser | Cys | Cys | Pro | Val | Val | Val |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Leu | Pro | Asp | Thr | Leu | Lys | Ile | Thr | Asn | Ser | Pro | Gln | Lys | Leu | Ile |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Ser | Cys | Arg | Arg | Glu | Glu | Val | Asp | Ala | Cys | Ala | Thr | Ala | Val | Met |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Ser | Pro | Glu | Glu | Leu | Leu | Arg | Ala | Trp | Ile | Ser | | | | |
| | | | | 305 | | | | | 310 | | | | | |

<210> 184
 <211> 808
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 654, 711, 748
 <223> unknown base

<400> 184
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 cctttctagc ttcctggccg gctctagaac aattcaggct tgcgtgcgac 100
 tagacctcag ctccaacata tgcattctga agaaagatgg ctgagatgac 150
 agaatgcttt attttggaaa gaaacaatgt tctaggtcaa actgagtcta 200
 ccaaatgcag actttcacaa tggttctaga agaaatctgg acaagtcttt 250
 tcatgtgggtt tttctacgca ttgattccat gtttgctcac agatgaagtg 300
 gccattctgc ctgccctca gaacctctct gtactctcaa ccaacatgaa 350
 gcatctcttg atgtggagcc cagtgatcgc gcctggagaa acagtgtact 400
 attctgtcga ataccagggg gactacgaga gcctgtacac gagccacatc 450
 tggatcccca gcagctggtg ctactcact gaaggtcctg agtgtgatgt 500
 caotgatgac atcacggcca ctgtgccata caacctttgt gtcagggccca 550
 cattgggctc acagacctca gcctggagca tcctgaagca tccctttaat 600
 agaaactcaa ccatccttac ccgacctggg atggagatca ccaaagatgg 650
 cttncaactg gttattgagc tggaggacct ggggccccag tttgagttcc 700
 ttgtggccta ntggaggagg ggcgaacccc ttgcggcgca aggggttngc 750
 gaacccttg cggccgctgg ggtatctctc gagaaaagag aggcccaata 800
 tgaccac 808

<210> 185
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 185
aggcttcgct gcgactagac ctc 23

<210> 186
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 186
ccaggtcggg taaggatggt tgag 24

<210> 187
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 187
tttctacgca ttgattccat gtttgctcac agatgaagtg gccattctgc 50

<210> 188
<211> 1227
<212> DNA
<213> Homo sapiens

<400> 188
cggacgcgtg ggccgccacc tccggaacaa gccatggtgg cggcgacggt 50
ggcagcggcg tggctgctcc tgtgggctgc ggctgcgcg cagcaggagc 100
aggacttcta cgacttcaag gcggtcaaca tccggggcaa actggtgtcg 150
ctggagaagt accgcggatc ggtgtccctg gtggtgaatg tggccagcga 200
gtgcggcttc acagaccagc actaccgagc cctgcagcag ctgcagcgag 250
acctgggccc ccaccacttt aacgtgctcg ccttcccctg caaccagttt 300
ggccaacagg agcctgacag caacaaggag attgagagct ttgcccgcgcg 350
cacctacagt gtctcattcc ccatgtttag caagattgca gtcaccggta 400
ctggtgcccc tcttgcttcc aagtacctgg cccagacttc tgggaaggag 450
cccacctgga acttctggaa gtacctagta gcccagatg gaaagggtgg 500
aggggcttgg gacccaactg tgtcagtga ggaggtcaga ccccagatca 550
cagcgctcgt gaggaagctc atcctactga agcgagaaga cttataacca 600

ccgcgtctcc tctccacca cctcatcccg cccacctgtg tggggctgac 650
 caatgcaaac tcaaattggtg cttcaaaggg agagaccac tgactctcct 700
 tcttttactc ttatgccatt ggtcccatca ttcttgtggg ggaaaaattc 750
 tagtattttg attatttgaa tcttacagca acaaatagga actcctggcc 800
 aatgagagct cttgaccagt gaatcaccag ccgatacgaa cgtcttgcca 850
 acaaaaatgt gtggcaaata gaagtatatc aagcaataat ctcccaccca 900
 aggccttctgt aaactgggac caatgattac ctcatagggc tgttgtgagg 950
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 aggcattcaa tgaacatttt ttgcatataa accaaaaaat aacttggttat 1050
 caataaaaac ttgcatccaa catgaatttc cagccgatga taatccaggc 1100
 caaagggttta gttgttggtta tttcctctgt attattttct tcattacaaa 1150
 agaaatgcaa gttcattgta acaatccaaa caatacctca cgatataaaa 1200
 taaaaatgaa agtatcctcc tcaaaaa 1227

<210> 189
 <211> 187
 <212> PRT
 <213> Homo sapiens

<400> 189
 Met Val Ala Ala Thr Val Ala Ala Ala Trp Leu Leu Leu Trp Ala
 1 5 10 15
 Ala Ala Cys Ala Gln Gln Glu Gln Asp Phe Tyr Asp Phe Lys Ala
 20 25 30
 Val Asn Ile Arg Gly Lys Leu Val Ser Leu Glu Lys Tyr Arg Gly
 35 40 45
 Ser Val Ser Leu Val Val Asn Val Ala Ser Glu Cys Gly Phe Thr
 50 55 60
 Asp Gln His Tyr Arg Ala Leu Gln Gln Leu Gln Arg Asp Leu Gly
 65 70 75
 Pro His His Phe Asn Val Leu Ala Phe Pro Cys Asn Gln Phe Gly
 80 85 90
 Gln Gln Glu Pro Asp Ser Asn Lys Glu Ile Glu Ser Phe Ala Arg
 95 100 105
 Arg Thr Tyr Ser Val Ser Phe Pro Met Phe Ser Lys Ile Ala Val
 110 115 120
 Thr Gly Thr Gly Ala His Pro Ala Phe Lys Tyr Leu Ala Gln Thr
 125 130 135
 Ser Gly Lys Glu Pro Thr Trp Asn Phe Trp Lys Tyr Leu Val Ala
 140 145 150
 Pro Asp Gly Lys Val Val Gly Ala Trp Asp Pro Thr Val Ser Val

| | | | | | |
|-----------------|---------------------|---------------------|-----|--|-----|
| | 155 | | 160 | | 165 |
| Glu Glu Val Arg | Pro Gln Ile Thr Ala | Leu Val Arg Lys Leu | Ile | | |
| | 170 | | 175 | | 180 |
| Leu Leu Lys Arg | Glu Asp Leu | | | | |
| | 185 | | | | |

<210> 190
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 190
 gcaggacttc tacgacttca aggc 24

<210> 191
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 191
 agtctgggcc aggtacttga aggc 24

<210> 192
 <211> 50
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 192
 caacatccgg ggcaactgg tgtcgctgga gaagtaccgc ggatcggtgt 50

<210> 193
 <211> 2187
 <212> DNA
 <213> Homo sapiens

<400> 193
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 acgtcgggat gctgcgcctg gggaggctgt gcgccgggag ctcgggggtg 100
 ctggggggccc gggccgccct ctctcggagt tggcaggaag ccaggttgca 150
 ggggtgtccgc ttcctcagtt ccagagaggt ggatcgcagtg gtctccacgc 200
 ccatcggagg cctcagctac gttcaggggt gcaccaaaaa gcatcttaac 250
 agcaagactg tgggccagtg cctggagacc acagcacaga gggcccaga 300
 acgagaggcc ttggtcgtcc tccatgaaga cgtcagggtg acctttgccc 350
 aactcaagga ggagggtggac aaagctgctt ctggcctcct gagcattggc 400

ctctgcaaag gtgaccggct gggcatgtgg ggacctaact cctatgcatg 450
 ggtgctcatg cagttggcca ccgcccaggc gggcatcatt ctggtgtctg 500
 tgaaccocage ctaccaggct atggaactgg agtatgtcct caagaagggtg 550
 ggctgcaagg cccttgtgtt cccaagcaa ttcaagacc agcaatacta 600
 caacgtcctg aagcagatct gtccagaagt ggagaatgcc cagccagggg 650
 ccttgaagag tcagaggctc ccagatctga ccacagtcac ctcggtggat 700
 gcccctttgc cggggaccct gctcctggat gaagtgggtg cggctggcag 750
 cacacggcag catctggacc agctccaata caaccagcag ttcctgtcct 800
 gccatgaccc catcaacatc cagttcacct cggggacaac aggcagcccc 850
 aagggggcca ccctctcca ctacaacatt gtcaacaact ccaacatttt 900
 aggagagcgc ctgaaactgc atgagaagac accagagcag ttgcggatga 950
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 agatcgtggg ccgctctaag gatatgatca tccgggggtg tgagaacatc 1600
 taccocgcag agctcgagga cttctttcac acacaccga aggtgcagga 1650
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 cctgcattcg gctgaaggac ggggaggaga ccacggtgga ggagataaaa 1750
 gctttctgca aagggaagat ctctcacttc aagattccga agtacatcgt 1800
 gtttgtcaca aactaccccc tcaccatttc aggaaagatc cagaaattca 1850
 aacttcgaga gcagatggaa cgacatctaa atctgtgaat aaagcagcag 1900
 gcctgtcctg gccggttggc ttgactctct cctgtcagaa tgcaacctgg 1950
 ctttatgcac ctagatgtcc ccagcaccca gttctgagcc aggcacatca 2000

| | | | | | |
|-----------------|---------------------|---------------------|-----|--|-----|
| | 245 | | 250 | | 255 |
| Asp Pro Ile Asn | Ile Gln Phe Thr Ser | Gly Thr Thr Gly Ser | Pro | | |
| | 260 | 265 | 270 | | |
| Lys Gly Ala Thr | Leu Ser His Tyr Asn | Ile Val Asn Asn Ser | Asn | | |
| | 275 | 280 | 285 | | |
| Ile Leu Gly Glu | Arg Leu Lys Leu His | Glu Lys Thr Pro Glu | Gln | | |
| | 290 | 295 | 300 | | |
| Leu Arg Met Ile | Leu Pro Asn Pro Leu | Tyr His Cys Leu Gly | Ser | | |
| | 305 | 310 | 315 | | |
| Val Ala Gly Thr | Met Met Cys Leu Met | Tyr Gly Ala Thr Leu | Ile | | |
| | 320 | 325 | 330 | | |
| Leu Ala Ser Pro | Ile Phe Asn Gly Lys | Lys Ala Leu Glu Ala | Ile | | |
| | 335 | 340 | 345 | | |
| Ser Arg Glu Arg | Gly Thr Phe Leu Tyr | Gly Thr Pro Thr Met | Phe | | |
| | 350 | 355 | 360 | | |
| Val Asp Ile Leu | Asn Gln Pro Asp Phe | Ser Ser Tyr Asp Ile | Ser | | |
| | 365 | 370 | 375 | | |
| Thr Met Cys Gly | Gly Val Ile Ala Gly | Ser Pro Ala Pro Pro | Glu | | |
| | 380 | 385 | 390 | | |
| Leu Ile Arg Ala | Ile Ile Asn Lys Ile | Asn Met Lys Asp Leu | Val | | |
| | 395 | 400 | 405 | | |
| Val Ala Tyr Gly | Thr Thr Glu Asn Ser | Pro Val Thr Phe Ala | His | | |
| | 410 | 415 | 420 | | |
| Phe Pro Glu Asp | Thr Val Glu Gln Lys | Ala Glu Ser Val Gly | Arg | | |
| | 425 | 430 | 435 | | |
| Ile Met Pro His | Thr Glu Ala Arg Ile | Met Asn Met Glu Ala | Gly | | |
| | 440 | 445 | 450 | | |
| Thr Leu Ala Lys | Leu Asn Thr Pro Gly | Glu Leu Cys Ile Arg | Gly | | |
| | 455 | 460 | 465 | | |
| Tyr Cys Val Met | Leu Gly Tyr Trp Gly | Glu Pro Gln Lys Thr | Glu | | |
| | 470 | 475 | 480 | | |
| Glu Ala Val Asp | Gln Asp Lys Trp Tyr | Trp Thr Gly Asp Val | Ala | | |
| | 485 | 490 | 495 | | |
| Thr Met Asn Glu | Gln Gly Phe Cys Lys | Ile Val Gly Arg Ser | Lys | | |
| | 500 | 505 | 510 | | |
| Asp Met Ile Ile | Arg Gly Gly Glu Asn | Ile Tyr Pro Ala Glu | Leu | | |
| | 515 | 520 | 525 | | |
| Glu Asp Phe Phe | His Thr His Pro Lys | Val Gln Glu Val Gln | Val | | |
| | 530 | 535 | 540 | | |
| Val Gly Val Lys | Asp Asp Arg Met Gly | Glu Glu Ile Cys Ala | Cys | | |
| | 545 | 550 | 555 | | |
| Ile Arg Leu Lys | Asp Gly Glu Glu Thr | Thr Val Glu Glu Ile | Lys | | |

| | | |
|-------------------------------------|-------------------------|-----|
| 560 | 565 | 570 |
| Ala Phe Cys Lys Gly Lys Ile Ser His | Phe Lys Ile Pro Lys Tyr | |
| 575 | 580 | 585 |
| Ile Val Phe Val Thr Asn Tyr Pro Leu | Thr Ile Ser Gly Lys Ile | |
| 590 | 595 | 600 |
| Gln Lys Phe Lys Leu Arg Glu Gln Met | Glu Arg His Leu Asn Leu | |
| 605 | 610 | 615 |

<210> 195
 <211> 642
 <212> DNA
 <213> Homo sapiens

<400> 195
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 agcagttgcg gatgatcctg cccaaccccc tgtaccattg cctgggttcc 100
 gtggcaggca caatgatgtg tctgatgtac ggtgccaccc tcatcctggc 150
 ctctcccatc ttcaatggca agaaggcact ggaggccatc agcagagaga 200
 gaggcacctt cctgtatggt acccccacga tgttcgtgga cattctgaac 250
 cagccagact tctccagtta tgacatctcg accatgtgtg gaggtgtcat 300
 tgetgggtcc cctgcacctc cagagttgat ccgagccatc atcaacaaga 350
 taaatatgaa ggacctggtg gttgcttatg gaaccacaga gaacagtccc 400
 gtgacattcg cgcacttccc tgaggacact gtggagcaga aggcagaaaag 450
 cgtgggcaga attatgcctc acacggaggc gcggatcatg aacatggagg 500
 cagggacgct ggcaaagctg aacacgcccg gggagctgtg catccgaggg 550
 tactgcgtca tgetgggcta ctggggtgag cctcagaaga cagaggaagc 600
 agtggatcag gacaagtggg attggacagg agatgtcgcc ac 642

<210> 196
 <211> 1575
 <212> DNA
 <213> Homo sapiens

<400> 196
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 aggccctgga gtgctacagc tgcgtgcaga aagcagatga cggatgctcc 150
 ccgaacaaga tgaagacagt gaagtgcgcg ccgggctgtg acgtctgcac 200
 cgaggccgtg ggggcggttg agaccatcca cggacaattc tcgctggcag 250
 tgcgggggtt cggttcggga ctccccggca agaataaccg cggcctggat 300
 cttcacgggc ttctggcggt catccagctg cagcaatgcg ctcaggatcg 350

ctgcaacgcc aagctcaacc tcacctcgcg ggcgctcgac ccggcaggta 400
atgagagtgc ataccgcgcc aacggcgtgg agtgctacag ctgtgtgggc 450
ctgagccggg aggcgtgcca gggtagatcg ccgccggtcg tgagctgcta 500
caacgccagc gatcatgtct acaagggctg ctctgacggc aacgtcacct 550
tgacggcagc taatgtgact gtgtccttgc ctgtccgggg ctgtgtccag 600
gatgaattct gcaactcggga tggagtaaca ggcccagggt tcacgctcag 650
tggctcctgt tgccagggggt cccgctgtaa ctctgacctc cgcaacaaga 700
cctacttctc ccctcgaatc ccaccccttg tccggctgcc ccctccagag 750
cccacgactg tggcctcaac cacatctgtc accacttcta cctcggcccc 800
agtgaagacc acatccacca ccaaaccat gccagcgcca accagtcaga 850
ctccgagaca gggagtagaa cagaggcct cccgggatga ggagcccagg 900
ttgactggag gcgcccgtgg ccaccaggac cgcagcaatt cagggcagta 950
tcctgcaaaa ggggggcccc agcagcccca taataaaggc tgtgtggctc 1000
ccacagctgg attggcagcc cttctgttgg ccgtggctgc tgggtgtccta 1050
ctgtgagctt ctccacctgg aaatttcct ctcacctact tctctggccc 1100
tgggtacccc tcttctcctc acttctctgt cccaccactg gactgggctg 1150
gcccagcccc tgtttttcca acattcccca gtatccccag cttctgctgc 1200
gctggtttgc ggctttggga aataaaatac cgttgatat attctgccag 1250
gggtgttcta gctttttgag gacagctcct gtatccttct catccttgtc 1300
tctccgcttg tcctcttgtg atgttaggac agagtgaag aagtcagctg 1350
tcacggggaa ggtgagagag aggatgctaa gcttcctact cactttctcc 1400
tagccagcct ggactttgga gcgtgggggt ggtgggacaa tggctcccca 1450
ctctaagcac tgcctcccct actccccgca tctttgggga atcggttccc 1500
catatgtctt ccttactaga ctgtgagctc ctgagggggg ggcccggtag 1550
ccaattcgcc ctatagtgag tcgta 1575

<210> 197
<211> 346
<212> PRT
<213> Homo sapiens

<400> 197
Met Asp Pro Ala Arg Lys Ala Gly Ala Gln Ala Met Ile Trp Thr
1 5 10 15
Ala Gly Trp Leu Leu Leu Leu Leu Arg Gly Gly Ala Gln Ala
20 25 30
Leu Glu Cys Tyr Ser Cys Val Gln Lys Ala Asp Asp Gly Cys Ser

| | 35 | 40 | 45 |
|-----------------|-------------------------|---------------------|-----|
| Pro Asn Lys Met | Lys Thr Val Lys Cys | Ala Pro Gly Val Asp | Val |
| | 50 | 55 | 60 |
| Cys Thr Glu Ala | Val Gly Ala Val Glu Thr | Ile His Gly Gln Phe | |
| | 65 | 70 | 75 |
| Ser Leu Ala Val | Arg Gly Cys Gly Ser Gly | Leu Pro Gly Lys Asn | |
| | 80 | 85 | 90 |
| Asp Arg Gly Leu | Asp Leu His Gly Leu Leu | Ala Phe Ile Gln Leu | |
| | 95 | 100 | 105 |
| Gln Gln Cys Ala | Gln Asp Arg Cys Asn Ala | Lys Leu Asn Leu Thr | |
| | 110 | 115 | 120 |
| Ser Arg Ala Leu | Asp Pro Ala Gly Asn Glu | Ser Ala Tyr Pro Pro | |
| | 125 | 130 | 135 |
| Asn Gly Val Glu | Cys Tyr Ser Cys Val Gly | Leu Ser Arg Glu Ala | |
| | 140 | 145 | 150 |
| Cys Gln Gly Thr | Ser Pro Pro Val Val Ser | Cys Tyr Asn Ala Ser | |
| | 155 | 160 | 165 |
| Asp His Val Tyr | Lys Gly Cys Phe Asp Gly | Asn Val Thr Leu Thr | |
| | 170 | 175 | 180 |
| Ala Ala Asn Val | Thr Val Ser Leu Pro Val | Arg Gly Cys Val Gln | |
| | 185 | 190 | 195 |
| Asp Glu Phe Cys | Thr Arg Asp Gly Val Thr | Gly Pro Gly Phe Thr | |
| | 200 | 205 | 210 |
| Leu Ser Gly Ser | Cys Cys Gln Gly Ser Arg | Cys Asn Ser Asp Leu | |
| | 215 | 220 | 225 |
| Arg Asn Lys Thr | Tyr Phe Ser Pro Arg Ile | Pro Pro Leu Val Arg | |
| | 230 | 235 | 240 |
| Leu Pro Pro Pro | Glu Pro Thr Thr Val Ala | Ser Thr Thr Ser Val | |
| | 245 | 250 | 255 |
| Thr Thr Ser Thr | Ser Ala Pro Val Arg Pro | Thr Ser Thr Thr Lys | |
| | 260 | 265 | 270 |
| Pro Met Pro Ala | Pro Thr Ser Gln Thr Pro | Arg Gln Gly Val Glu | |
| | 275 | 280 | 285 |
| His Glu Ala Ser | Arg Asp Glu Glu Pro Arg | Leu Thr Gly Gly Ala | |
| | 290 | 295 | 300 |
| Ala Gly His Gln | Asp Arg Ser Asn Ser Gly | Gln Tyr Pro Ala Lys | |
| | 305 | 310 | 315 |
| Gly Gly Pro Gln | Gln Pro His Asn Lys Gly | Cys Val Ala Pro Thr | |
| | 320 | 325 | 330 |
| Ala Gly Leu Ala | Ala Leu Leu Leu Ala Val | Ala Ala Gly Val Leu | |
| | 335 | 340 | 345 |

Leu

<210> 198
 <211> 1657
 <212> DNA
 <213> Homo sapiens

<400> 198
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 acgccatgga gttggtgctg gtcttcctct gcagcctgct ggcccccatg 100
 gtccctggcca gtgcagctga aaaggagaag gaaatggacc cttttcatta 150
 tgattaccag accctgagga ttgggggact ggtgttcgct gtggtcctct 200
 tctcggttgg gatcctcctt atoctaagtc gcagggtgcaa gtgcagtttc 250
 aatcagaagc cccggggcccc aggagatgag gaagcccagg tggagaacct 300
 catcacgcc aatgcaacag agccccagaa gcagagaact gaagtgcagc 350
 catcaggtgg aagcctctgg aacctgaggc ggctgcttga acctttggat 400
 gcaaattgtc atgcttaaga aaaccggcca cttcagcaac agccctttcc 450
 ccaggagaag ccaagaactt gtgtgtcccc caccctatcc cctctaacac 500
 cattcctcca cctgatgatg caactaacac ttgcctcccc actgcagcct 550
 gcggtcctgc ccacctcccc tgatgtgtgt gtgtgtgtgt gtgtgtgact 600
 gtgtgtgttt gctaactgtg gtctttgtgg ctacttgttt gtggatggta 650
 ttgtgtttgt tagtgaactg tggactcgct ttcccaggca ggggctgagc 700
 cacatggcca tctgtctctc cctgcccccg tggccctcca tcaccttctg 750
 ctccataggag gctgcttggt gcccagagacc agccccctcc cctgatttag 800
 ggatgcgtag ggtaagagca cgggcagtggt tcttcagtcg tcttgggacc 850
 tgggaagggt tgcagcactt tgtcatcatt cttcatggac tcctttcact 900
 cctttaacaa aaaccttgct tccttatccc acctgatccc agtctgaagg 950
 tctcttagca actggagata caaagcaagg agctggtgag cccagcgttg 1000
 acgtcaggca ggctatgccc ttccgtggtt aatttcttcc caggggcttc 1050
 cacgaggagt ccccatctgc cccgcccctt cacagagcgc ccggggattc 1100
 caggcccagg gcttctactc tgcccctggg gaatgtgtcc cctgcatatc 1150
 ttctcagcaa taactccatg ggctctggga ccctaccctc tccaaccttc 1200
 cctgcttctg agacttcaat ctacagccca gctcatccag atgcagacta 1250
 cagtccctgc aattgggtct ctggcaggca atagttgaag gactcctggt 1300
 ccgttggggc cagcacaccg ggatggatgg agggagagca gaggcctttg 1350
 cttctctgcc tacgtccctt tagatgggca gcagaggcaa ctcccgcac 1400

ctttgctctg cctgtcgggtg gtcagagcgg tgagcgaggt gggttggaga 1450
 ctcagcaggc tccgtgcagc ccttggaac agtgagaggt tgaaggtcat 1500
 aacgagagt ggaactcaac ccagatcccg cccctcctgt cctctgtgtt 1550
 cccgcggaaa ccaaccaaac cgtgcgctgt gacccattgc tgttctctgt 1600
 atcgtgatct atcctcaaca acaacagaaa aaaggaataa aatatccttt 1650
 gtttct 1657

<210> 199
 <211> 120
 <212> PRT
 <213> Homo sapiens

<400> 199
 Met Glu Leu Val Leu Val Phe Leu Cys Ser Leu Leu Ala Pro Met
 1 5 10 15
 Val Leu Ala Ser Ala Ala Glu Lys Glu Lys Glu Met Asp Pro Phe
 20 25 30
 His Tyr Asp Tyr Gln Thr Leu Arg Ile Gly Gly Leu Val Phe Ala
 35 40 45
 Val Val Leu Phe Ser Val Gly Ile Leu Leu Ile Leu Ser Arg Arg
 50 55 60
 Cys Lys Cys Ser Phe Asn Gln Lys Pro Arg Ala Pro Gly Asp Glu
 65 70 75
 Glu Ala Gln Val Glu Asn Leu Ile Thr Ala Asn Ala Thr Glu Pro
 80 85 90
 Gln Lys Gln Arg Thr Glu Val Gln Pro Ser Gly Gly Ser Leu Trp
 95 100 105
 Asn Leu Arg Arg Leu Leu Glu Pro Leu Asp Ala Asn Val Asp Ala
 110 115 120

<210> 200
 <211> 415
 <212> DNA
 <213> Homo sapiens

<400> 200
 aaacttgacg ccatgaagat cccggtcctt cctgcogtgg tgctcctctc 50
 cctcctggtg ctccactctg cccagggagc caccctgggt ggtcctgagg 100
 aagaaagcac cattgagaat tatgcgtcac gacccgaggc ctttaacacc 150
 ccgttcctga acatcgacaa attgcgatct gcgtttaagg ctgatgagtt 200
 cctgaactgg cagccctct ttgagtctat caaaaggaaa cttcctttcc 250
 tcaactggga tgcctttcct aagctgaaag gactgaggag cgcaactcct 300
 gatgcccagt gaccatgacc tccactggaa gagggggcta gcgtgagcgc 350
 tgattctcaa cctaccataa ctctttcctg cctcaggaac tccaataaaa 400

cattttccat ccaaa 415

<210> 201

<211> 99

<212> PRT

<213> Homo sapiens

<400> 201

Met Lys Ile Pro Val Leu Pro Ala Val Val Leu Leu Ser Leu Leu
1 5 10 15

Val Leu His Ser Ala Gln Gly Ala Thr Leu Gly Gly Pro Glu Glu
20 25 30

Glu Ser Thr Ile Glu Asn Tyr Ala Ser Arg Pro Glu Ala Phe Asn
35 40 45

Thr Pro Phe Leu Asn Ile Asp Lys Leu Arg Ser Ala Phe Lys Ala
50 55 60

Asp Glu Phe Leu Asn Trp His Ala Leu Phe Glu Ser Ile Lys Arg
65 70 75

Lys Leu Pro Phe Leu Asn Trp Asp Ala Phe Pro Lys Leu Lys Gly
80 85 90

Leu Arg Ser Ala Thr Pro Asp Ala Gln
95

<210> 202

<211> 678

<212> DNA

<213> Homo sapiens

<400> 202

cagttctgaa atcaatggag ttaatttagg gaatacaaac cagccatggg 50

ggtggagatt gcctttgcct cagtgattct cacctgcctc tcccttctgg 100

cagcaggagt ctcccagggt gttcttctcc agccagttcc aactcaggag 150

acaggtccca aggccatggg agatctctcc tgtggctttg ccggccactc 200

atgagagtgt ttttgtgtaa agtatttttt agaatactgt tgacttcttc 250

atgatttaat aaccatcctt tgccaagttt tatgaggctt taggggaatg 300

tcaaccctca aatttttgtt atactagatg gcttccattt acccaccact 350

attttaaggt ccctttattt ttaggttcaa ggttcatttg acttgagaaa 400

gtgcccttct gcagcttcat tgattttgtt tatcttcaact attaattgta 450

acgattaaaa aagaataaga gcacgcagac ctctaggaga atattttatc 500

cctgggtgcc cctgacacat ttatgtagtg atcccacaaa tgtgattggt 550

aatttaaatg ttatttctaatt attagtacat tcagttgtga tgtaatatga 600

ataaccagaa tctatttctt aaaagttttg agtatatttt tcaactagat 650

atttgtatag aaagactgaa tagtgatg 678

<210> 203
 <211> 52
 <212> PRT
 <213> Homo sapiens

<400> 203
 Met Gly Val Glu Ile Ala Phe Ala Ser Val Ile Leu Thr Cys Leu
 1 5 10 15
 Ser Leu Leu Ala Ala Gly Val Ser Gln Val Val Leu Leu Gln Pro
 20 25 30
 Val Pro Thr Gln Glu Thr Gly Pro Lys Ala Met Gly Asp Leu Ser
 35 40 45
 Cys Gly Phe Ala Gly His Ser
 50

<210> 204
 <211> 1917
 <212> DNA
 <213> Homo sapiens

<400> 204
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 gcttcggctc tggctgctgt tgttcctcct gccctcagcg cagggccgcc 100
 agaaggagtc aggttcaaaa tggaaagtat ttattgacca aattaacagg 150
 tctttggaga attacgaacc atgttcaagt caaaactgca gctgctacca 200
 tgggtgtcata gaagaggatc taactccttt ccgaggaggc atctccagga 250
 agatgatggc agaggtagtc agacggaagc tagggaccca ctatcagatc 300
 actaagaaca gactgtaccg ggaaaatgac tgcattgtcc cctcaagggtg 350
 tagtggtggt gagcacttta ttttggaaat gatcgggctg ctccctgaca 400
 tggagatggt gatcaatgta cgagattatc ctcatggtcc taaatggatg 450
 gagcctgcca tccagtcctt ctcttcagc aagacatcag agtaccatga 500
 tatcatgtat cctgcttgga cattttggga agggggacct gctgtttggc 550
 caatttatcc tacaggctctt ggacggtggg acctcttcag agaagatctg 600
 gtaagggtcag cagcacagtg gccatggaaa aagaaaaact ctacagcata 650
 tttccgagga tcaaggacaa gtccagaacg agatcctctc attcttctgt 700
 ctoggaaaaa cccaaaactt gttgatgcag aatacaccaa aaaccaggcc 750
 tggaaatcta tgaaagatac cttaggaaaag ccagctgcta aggatgtcca 800
 tcttgtggat cactgcaaata acaagtatct gtttaatttt cgaggcgtag 850
 ctgcaagttt ccggttttaa cacctcttcc tgtgtggctc acttgttttc 900
 catgttggtg atgagtggtc agaattcttc tatccacagc tgaagccatg 950
 ggttcactat atccagtcga aaacagatct ctccaatgtc caagagctgt 1000

tacaatttgt aaaagcaa at gatgatgtag ctcaagagat tgctgaaagg 1050
 ggaagccagt ttattaggaa ccatttgcag atggatgaca tcacctgtta 1100
 ctggggagaac ctcttgagtg aatactctaa attcctgtct tataatgtaa 1150
 cgagaaggaa aggttatgat caaattattc ccaaaatggt gaaaactgaa 1200
 ctatagtagt catcatagga ccatagtcct ctttgtggca acagatctca 1250
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 agttcaactt tttggatgaa taaggaccag aaatcgtgag atgtggattt 1450
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 tcagatcatc cacctgtgtg agtccatcac tgtgaaattg actgtgtcca 1550
 tgtgatgatg ccctttgtcc cattatttgg agcagaaaat tcgtcatttg 1600
 gaagtagtac aactcattgc tggaaattgt aaattattca aggcgtgatc 1650
 tctgtcactt tattttaatg taggaaaccc tatgggggtt atgaaaaata 1700
 cttggggatc attctctgaa tggcttaagg aagcggtagc catgccatgc 1750
 aatgatgtag gagttctctt ttgtaaaacc ataaactctg ttactcagga 1800
 ggtttctata atgccacata gaaagaggcc aattgcatga gtaattattg 1850
 caattggatt tcagggtccc tttttgtgcc ttcatgcctt acttcttaat 1900
 gcctctctaa agccaaa 1917

<210> 205
 <211> 392
 <212> PRT
 <213> Homo sapiens

<400> 205
 Met Glu Trp Trp Ala Ser Ser Pro Leu Arg Leu Trp Leu Leu Leu
 1 5 10 15
 Phe Leu Leu Pro Ser Ala Gln Gly Arg Gln Lys Glu Ser Gly Ser
 20 25 30
 Lys Trp Lys Val Phe Ile Asp Gln Ile Asn Arg Ser Leu Glu Asn
 35 40 45
 Tyr Glu Pro Cys Ser Ser Gln Asn Cys Ser Cys Tyr His Gly Val
 50 55 60
 Ile Glu Glu Asp Leu Thr Pro Phe Arg Gly Gly Ile Ser Arg Lys
 65 70 75
 Met Met Ala Glu Val Val Arg Arg Lys Leu Gly Thr His Tyr Gln
 80 85 90
 Ile Thr Lys Asn Arg Leu Tyr Arg Glu Asn Asp Cys Met Phe Pro

[illegible]

180

<211> 1425
 <212> DNA
 <213> Homo sapiens

<400> 206
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 ttacctccc ttcgccact tcttgaggag atcccggagt ctggtggtcc 150
 ggatgccgc cagggatggc tggctgcct gcaggaccgc agcatccttg 200
 cccctcctggc atgggatctg gggctcctgc ttctatttgt tgggcagcac 250
 agcctcatgg cagctgaaag agtgaaggca tggacatccc ggtacttttg 300
 ggtccttcag aggtcactgt atgtggcctg cactgccctg gccttgacgc 350
 tggatgatgc gtactgggag ccataccca aaggccctgt gttgtgggag 400
 gctcgggctg agccatgggc cacctgggtg ccgctcctct gctttgtgct 450
 ccatgtcatc tcttggtcc tcacttttag catccttctc gtctttgact 500
 atgctgagct catgggcctc aaacaggtat actaccatgt gctggggctg 550
 ggcgagcctc tggccctgaa gtctccccgg gctctcagac tcttctccca 600
 cctgcgccac ccagtgtgtg tggagctgct gacagtgtg tgggtggtgc 650
 ctaccctggg cacggaccgt ctctccttg ctttctcct taccctctac 700
 ctgggcctgg ctacgggct tgatcagcaa gacctcctg acctccgggc 750
 ccagctacaa agaaaactcc acctgctctc tggcccccag gatggggagg 800
 cagagtgagg agctcactct gggtacaagc cctgttcttc ctctccact 850
 gaattctaaa tccttaacat ccaggccctg gctgcttcat gccagaggcc 900
 caaatccatg gactgaagga gatgccctt ctactacttg agactttatt 950
 ctctgggtcc agctccatc cctaaattct gagtttcagc cactgaactc 1000
 caaggctcac ttctcaccag caaggaagag tggggtatgg aagtcatotg 1050
 tcccttact gtttagagca tgacactctc cccctcaaca gcctcctgag 1100
 aaggaaagga tctgcctga ccactccctt ggcactgtta cttgcctctg 1150
 cgcctcaggg gtccccttct gcaccgctgg cttccactcc aagaaggagg 1200
 accagggctc gcaagttcaa cggatcatagc tgtccctcca ggccccaacc 1250
 ttgcctcacc actccgggc ctagtctctg cacctcctta ggccctgct 1300
 ctgggctcag accccaacct agtcaagggg attctcctgc tottaactcg 1350
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 aaagtcagcc tttttctaaa aaaaa 1425

<210> 207
 <211> 262
 <212> PRT
 <213> Homo sapiens

<400> 207

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Pro | Ala | Leu | Leu | Leu | Ile | Pro | Ala | Ala | Leu | Ala | Ser | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Ile | Leu | Ala | Phe | Gly | Thr | Gly | Val | Glu | Phe | Val | Arg | Phe | Thr | Ser |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Leu | Arg | Pro | Leu | Leu | Gly | Gly | Ile | Pro | Glu | Ser | Gly | Gly | Pro | Asp |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ala | Arg | Gln | Gly | Trp | Leu | Ala | Ala | Leu | Gln | Asp | Arg | Ser | Ile | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Ala | Pro | Leu | Ala | Trp | Asp | Leu | Gly | Leu | Leu | Leu | Phe | Val | Gly | |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Gln | His | Ser | Leu | Met | Ala | Ala | Glu | Arg | Val | Lys | Ala | Trp | Thr | Ser |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Arg | Tyr | Phe | Gly | Val | Leu | Gln | Arg | Ser | Leu | Tyr | Val | Ala | Cys | Thr |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Ala | Leu | Ala | Leu | Gln | Leu | Val | Met | Arg | Tyr | Trp | Glu | Pro | Ile | Pro |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Lys | Gly | Pro | Val | Leu | Trp | Glu | Ala | Arg | Ala | Glu | Pro | Trp | Ala | Thr |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Trp | Val | Pro | Leu | Leu | Cys | Phe | Val | Leu | His | Val | Ile | Ser | Trp | Leu |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Leu | Ile | Phe | Ser | Ile | Leu | Leu | Val | Phe | Asp | Tyr | Ala | Glu | Leu | Met |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Gly | Leu | Lys | Gln | Val | Tyr | Tyr | His | Val | Leu | Gly | Leu | Gly | Glu | Pro |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Leu | Ala | Leu | Lys | Ser | Pro | Arg | Ala | Leu | Arg | Leu | Phe | Ser | His | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Arg | His | Pro | Val | Cys | Val | Glu | Leu | Leu | Thr | Val | Leu | Trp | Val | Val |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Pro | Thr | Leu | Gly | Thr | Asp | Arg | Leu | Leu | Leu | Ala | Phe | Leu | Leu | Thr |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Leu | Tyr | Leu | Gly | Leu | Ala | His | Gly | Leu | Asp | Gln | Gln | Asp | Leu | Arg |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Tyr | Leu | Arg | Ala | Gln | Leu | Gln | Arg | Lys | Leu | His | Leu | Leu | Ser | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Pro | Gln | Asp | Gly | Glu | Ala | Glu | | | | | | | | |
| | | | | 260 | | | | | | | | | | |

<210> 208
 <211> 2095
 <212> DNA

<213> Homo sapiens

<400> 208

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| Arg | Arg | His | His | Asn | His | Gly | Ser | Pro | His | Leu | Lys | Ala | Lys | His |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Thr | Arg | Asp | Asp | Leu | Lys | Ser | Ser | Asn | Arg | His | Gly | His | Lys | Arg |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Lys | Ser | Arg | Ser | Arg | Ser | Gln | Ser | Lys | Ser | Arg | Asp | His | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Asp | Ala | Ala | Lys | Lys | His | Arg | His | Glu | Arg | Gly | His | His | Arg | Asp |
| | | | | 260 | | | | | 265 | | | | | 270 |
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290 295

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<211> 479
 <212> PRT
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<400> 216

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| Met | Ala | Val | Leu | Gly | Val | Gln | Leu | Val | Val | Thr | Leu | Leu | Thr | Ala | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Leu | Met | His | Arg | Leu | Ala | Pro | His | Cys | Ser | Phe | Ala | Arg | Trp | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Leu | Leu | Cys | Asn | Gly | Ser | Leu | Phe | Arg | Tyr | Lys | His | Pro | Ser | Glu | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Glu | Glu | Leu | Arg | Ala | Leu | Ala | Gly | Lys | Pro | Arg | Pro | Arg | Gly | Arg | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Lys | Glu | Arg | Trp | Ala | Asn | Gly | Leu | Ser | Glu | Glu | Lys | Pro | Leu | Ser | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Val | Pro | Arg | Asp | Ala | Pro | Phe | Gln | Leu | Glu | Thr | Cys | Pro | Leu | Thr | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Thr | Val | Asp | Ala | Leu | Val | Leu | Arg | Phe | Phe | Leu | Glu | Tyr | Gln | Trp | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Phe | Val | Asp | Phe | Ala | Val | Tyr | Ser | Gly | Gly | Val | Tyr | Leu | Phe | Thr | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Glu | Ala | Tyr | Tyr | Tyr | Met | Leu | Gly | Pro | Ala | Lys | Glu | Thr | Asn | Ile | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Ala | Val | Phe | Trp | Cys | Leu | Leu | Thr | Val | Thr | Phe | Ser | Ile | Lys | Met | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Phe | Leu | Thr | Val | Thr | Arg | Leu | Tyr | Phe | Ser | Ala | Glu | Glu | Gly | Gly | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Glu | Arg | Ser | Val | Cys | Leu | Thr | Phe | Ala | Phe | Leu | Phe | Leu | Leu | Leu | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Ala | Met | Leu | Val | Gln | Val | Val | Arg | Glu | Glu | Thr | Leu | Glu | Leu | Gly | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Leu | Glu | Pro | Gly | Leu | Ala | Ser | Met | Thr | Gln | Asn | Leu | Glu | Pro | Leu | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Leu | Lys | Lys | Gln | Gly | Trp | Asp | Trp | Ala | Leu | Pro | Val | Ala | Lys | Leu | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Ala | Ile | Arg | Val | Gly | Leu | Ala | Val | Val | Gly | Ser | Val | Leu | Gly | Ala | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Phe | Leu | Thr | Phe | Pro | Gly | Leu | Arg | Leu | Ala | Gln | Thr | His | Arg | Asp | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ala | Leu | Thr | Met | Ser | Glu | Asp | Arg | Pro | Met | Leu | Gln | Phe | Leu | Leu | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| His | Thr | Ser | Phe | Leu | Ser | Pro | Leu | Phe | Ile | Leu | Trp | Leu | Trp | Thr | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Lys | Pro | Ile | Ala | Arg | Asp | Phe | Leu | His | Gln | Pro | Pro | Phe | Gly | Glu | |

| | | |
|-----------------|---------------------|-------------------------|
| 290 | 295 | 300 |
| Thr Arg Phe Ser | Leu Leu Ser Asp Ser | Ala Phe Asp Ser Gly Arg |
| 305 | 310 | 315 |
| Leu Trp Leu Leu | Val Val Leu Cys Leu | Leu Arg Leu Ala Val Thr |
| 320 | 325 | 330 |
| Arg Pro His Leu | Gln Ala Tyr Leu Cys | Leu Ala Lys Ala Arg Val |
| 335 | 340 | 345 |
| Glu Gln Leu Arg | Arg Glu Ala Gly Arg | Ile Glu Ala Arg Glu Ile |
| 350 | 355 | 360 |
| Gln Gln Arg Val | Val Arg Val Tyr Cys | Tyr Val Thr Val Val Ser |
| 365 | 370 | 375 |
| Leu Gln Tyr Leu | Thr Pro Leu Ile Leu | Thr Leu Asn Cys Thr Leu |
| 380 | 385 | 390 |
| Leu Leu Lys Thr | Leu Gly Gly Tyr Ser | Trp Gly Leu Gly Pro Ala |
| 395 | 400 | 405 |
| Pro Leu Leu Ser | Pro Asp Pro Ser Ser | Ala Ser Ala Ala Pro Ile |
| 410 | 415 | 420 |
| Gly Ser Gly Glu | Asp Glu Val Gln Gln | Thr Ala Ala Arg Ile Ala |
| 425 | 430 | 435 |
| Gly Ala Leu Gly | Gly Leu Leu Thr Pro | Leu Phe Leu Arg Gly Val |
| 440 | 445 | 450 |
| Leu Ala Tyr Leu | Ile Trp Trp Thr Ala | Ala Cys Gln Leu Leu Ala |
| 455 | 460 | 465 |
| Ser Leu Phe Gly | Leu Tyr Phe His Gln | His Leu Ala Gly Ser |
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 <212> DNA
 <213> Homo sapiens

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 <222> 5, 146
 <223> unknown base

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<212> PRT

<213> Homo sapiens

<400> 219

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| Leu Cys Lys Gly | Ala Ser His Tyr Gly | Leu Thr Lys Asp Arg | Lys |
| | 35 | 40 | 45 |
| Arg Arg Ser Gln | Asp Gly Cys Pro Asp | Gly Cys Ala Ser Leu | Thr |
| | 50 | 55 | 60 |
| Ala Thr Ala Pro | Ser Pro Glu Val Ser | Ala Ala Ala Thr Ile | Ser |
| | 65 | 70 | 75 |
| Leu Met Thr Asp | Glu Pro Gly Leu Asp | Asn Pro Ala Tyr Val | Ser |
| | 80 | 85 | 90 |
| Ser Ala Glu Asp | Gly Gln Pro Ala Ile | Ser Pro Val Asp Ser | Gly |
| | 95 | 100 | 105 |
| Arg Ser Asn Arg | Thr Arg Ala Arg Pro | Phe Glu Arg Ser Thr | Ile |
| | 110 | 115 | 120 |
| Arg Ser Arg Ser | Phe Lys Lys Ile Asn | Arg Ala Leu Ser Val | Leu |
| | 125 | 130 | 135 |
| Arg Arg Thr Lys | Ser Gly Ser Ala Val | Ala Asn His Ala Asp | Gln |
| | 140 | 145 | 150 |
| Gly Arg Glu Asn | Ser Glu Asn Thr Thr | Ala Pro Glu Val Phe | Pro |
| | 155 | 160 | 165 |
| Arg Leu Tyr His | Leu Ile Pro Asp Gly | Glu Ile Thr Ser Ile | Lys |
| | 170 | 175 | 180 |
| Ile Asn Arg Val | Asp Pro Ser Glu Ser | Leu Ser Ile Arg Leu | Val |
| | 185 | 190 | 195 |
| Gly Gly Ser Glu | Thr Pro Leu Val His | Ile Ile Ile Gln His | Ile |
| | 200 | 205 | 210 |
| Tyr Arg Asp Gly | Val Ile Ala Arg Asp | Gly Arg Leu Leu Pro | Gly |
| | 215 | 220 | 225 |
| Asp Ile Ile Leu | Lys Val Asn Gly Met | Asp Ile Ser Asn Val | Pro |
| | 230 | 235 | 240 |
| His Asn Tyr Ala | Val Arg Leu Leu Arg | Gln Pro Cys Gln Val | Leu |
| | 245 | 250 | 255 |
| Trp Leu Thr Val | Met Arg Glu Gln Lys | Phe Arg Ser Arg Asn | Asn |
| | 260 | 265 | 270 |
| Gly Gln Ala Pro | Asp Ala Tyr Arg Pro | Arg Asp Asp Ser Phe | His |
| | 275 | 280 | 285 |
| Val Ile Leu Asn | Lys Ser Ser Pro Glu | Glu Gln Leu Gly Ile | Lys |
| | 290 | 295 | 300 |
| Leu Val Arg Lys | Val Asp Glu Pro Gly | Val Phe Ile Phe Asn | Val |
| | 305 | 310 | 315 |
| Leu Asp Gly Gly | Val Ala Tyr Arg His | Gly Gln Leu Glu Glu | Asn |

| 320 | | | | | | | | | | 325 | | | | | 330 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Asp | Arg | Val | Leu | Ala | Ile | Asn | Gly | His | Asp | Leu | Arg | Tyr | Gly | Ser | | | | | |
| | | | | 335 | | | | | 340 | | | | | 345 | | | | | |
| Pro | Glu | Ser | Ala | Ala | His | Leu | Ile | Gln | Ala | Ser | Glu | Arg | Arg | Val | | | | | |
| | | | | 350 | | | | | 355 | | | | | 360 | | | | | |
| His | Leu | Val | Val | Ser | Arg | Gln | Val | Arg | Gln | Arg | Ser | Pro | Asp | Ile | | | | | |
| | | | | 365 | | | | | 370 | | | | | 375 | | | | | |
| Phe | Gln | Glu | Ala | Gly | Trp | Asn | Ser | Asn | Gly | Ser | Trp | Ser | Pro | Gly | | | | | |
| | | | | 380 | | | | | 385 | | | | | 390 | | | | | |
| Pro | Gly | Glu | Arg | Ser | Asn | Thr | Pro | Lys | Pro | Leu | His | Pro | Thr | Ile | | | | | |
| | | | | 395 | | | | | 400 | | | | | 405 | | | | | |
| Thr | Cys | His | Glu | Lys | Val | Val | Asn | Ile | Gln | Lys | Asp | Pro | Gly | Glu | | | | | |
| | | | | 410 | | | | | 415 | | | | | 420 | | | | | |
| Ser | Leu | Gly | Met | Thr | Val | Ala | Gly | Gly | Ala | Ser | His | Arg | Glu | Trp | | | | | |
| | | | | 425 | | | | | 430 | | | | | 435 | | | | | |
| Asp | Leu | Pro | Ile | Tyr | Val | Ile | Ser | Val | Glu | Pro | Gly | Gly | Val | Ile | | | | | |
| | | | | 440 | | | | | 445 | | | | | 450 | | | | | |
| Ser | Arg | Asp | Gly | Arg | Ile | Lys | Thr | Gly | Asp | Ile | Leu | Leu | Asn | Val | | | | | |
| | | | | 455 | | | | | 460 | | | | | 465 | | | | | |
| Asp | Gly | Val | Glu | Leu | Thr | Glu | Val | Ser | Arg | Ser | Glu | Ala | Val | Ala | | | | | |
| | | | | 470 | | | | | 475 | | | | | 480 | | | | | |
| Leu | Leu | Lys | Arg | Thr | Ser | Ser | Ser | Ile | Val | Leu | Lys | Ala | Leu | Glu | | | | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | | | |
| Val | Lys | Glu | Tyr | Glu | Pro | Gln | Glu | Asp | Cys | Ser | Ser | Pro | Ala | Ala | | | | | |
| | | | | 500 | | | | | 505 | | | | | 510 | | | | | |
| Leu | Asp | Ser | Asn | His | Asn | Met | Ala | Pro | Pro | Ser | Asp | Trp | Ser | Pro | | | | | |
| | | | | 515 | | | | | 520 | | | | | 525 | | | | | |
| Ser | Trp | Val | Met | Trp | Leu | Glu | Leu | Pro | Arg | Cys | Leu | Tyr | Asn | Cys | | | | | |
| | | | | 530 | | | | | 535 | | | | | 540 | | | | | |
| Lys | Asp | Ile | Val | Leu | Arg | Arg | Asn | Thr | Ala | Gly | Ser | Leu | Gly | Phe | | | | | |
| | | | | 545 | | | | | 550 | | | | | 555 | | | | | |
| Cys | Ile | Val | Gly | Gly | Tyr | Glu | Glu | Tyr | Asn | Gly | Asn | Lys | Pro | Phe | | | | | |
| | | | | 560 | | | | | 565 | | | | | 570 | | | | | |
| Phe | Ile | Lys | Ser | Ile | Val | Glu | Gly | Thr | Pro | Ala | Tyr | Asn | Asp | Gly | | | | | |
| | | | | 575 | | | | | 580 | | | | | 585 | | | | | |
| Arg | Ile | Arg | Cys | Gly | Asp | Ile | Leu | Leu | Ala | Val | Asn | Gly | Arg | Ser | | | | | |
| | | | | 590 | | | | | 595 | | | | | 600 | | | | | |
| Thr | Ser | Gly | Met | Ile | His | Ala | Cys | Leu | Ala | Arg | Leu | Leu | Lys | Glu | | | | | |
| | | | | 605 | | | | | 610 | | | | | 615 | | | | | |
| Leu | Lys | Gly | Arg | Ile | Thr | Leu | Thr | Ile | Val | Ser | Trp | Pro | Gly | Thr | | | | | |
| | | | | 620 | | | | | 625 | | | | | 630 | | | | | |
| Phe | Leu | | | | | | | | | | | | | | | | | | |

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 <212> DNA
 <213> Homo sapiens

<400> 220
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 tccaggggtgc totcccgaag agcctgcttt atcctgaaga tggaccatca 350
 gaacatccct cctctgaaca atctccaatg gtacatctat gagaaacagg 400
 ctctggacaa catgttctcc aacaaatata cctgggtcaa gtacaaccct 450
 ctggagtctc tgatcaaaga cgtggattgg ttcctgcttg ggtcacccat 500
 tgagaaactc tgcaaacata tccctttgta taagggggaa gtggttgaaa 550
 acacacataa tgtcgggtgt ggaggctgtg caaaggctgg gtcctctgggc 600
 atcttgggaa tttcaatctg tgcagacatt catgtttagg atgattagcc 650
 ctcttgtttt atcttttcaa agaaatacat ccttggttta cactcaaaag 700
 tcaaattaaa ttctttccca atgccccaac taattttgag attcagtcag 750
 aaaatataaa tgctgtatatt ata 773

<210> 221
 <211> 184
 <212> PRT
 <213> Homo sapiens

<400> 221
 Met Lys Ile Leu Val Ala Phe Leu Val Val Leu Thr Ile Phe Gly
 1 5 10 15
 Ile Gln Ser His Gly Tyr Glu Val Phe Asn Ile Ile Ser Pro Ser
 20 25 30
 Asn Asn Gly Gly Asn Val Gln Glu Thr Val Thr Ile Asp Asn Glu
 35 40 45
 Lys Asn Thr Ala Ile Val Asn Ile His Ala Gly Ser Cys Ser Ser
 50 55 60
 Thr Thr Ile Phe Asp Tyr Lys His Gly Tyr Ile Ala Ser Arg Val
 65 70 75
 Leu Ser Arg Arg Ala Cys Phe Ile Leu Lys Met Asp His Gln Asn
 80 85 90

<210> 224
<211> 1297
<212> DNA
<213> Homo sapiens

<400> 224
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ctctctttgc tatgacatca ccgtcatccc taagttcaga cctggaccac 150
ggtggtgtgc ggttcaaggc caggtggatg aaaagacttt tcttcactat 200
gactgtggca acaagacagt cacacctgtc agtcccctgg ggaagaaact 250
aaatgtcaca acggcctgga aagcacagaa ccagtgactg agagaggtgg 300
tggacatact tacagagcaa ctgcgtgaca ttcagctgga gaattacaca 350
cccaaggaac ccctcaccct gcaggcaagg atgtcttggt agcagaaagc 400
tgaaggacac agcagtggat cttggcagtt cagtttcgat gggcagatct 450
tcctcctctt tgactcagag aagagaatgt ggacaacggt tcatcctgga 500
gccagaaaga tgaaagaaaa gtgggagaat gacaagggtt tggccatgtc 550
cttccattac ttctcaatgg gagactgtat aggatggctt gaggacttct 600
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cttctctttt tgtttggaat atcaagtact tctttgaatg atgatctctt 1100
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tggggattct ttccgtgtcc tgaaagagaa tttttaaatt atttaataag 1200
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tgatatttaa ataaagagtt ctatttccca aaaaaaaaaa aaaaaaa 1297

<210> 225
<211> 246
<212> PRT
<213> Homo sapiens

<400> 225

Met Ala Ala Ala Ala Thr Lys Ile Leu Leu Cys Leu Pro Leu
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Leu Leu Leu Leu Ser Gly Trp Ser Arg Ala Gly Arg Ala Asp Pro
20 25 30
His Ser Leu Cys Tyr Asp Ile Thr Val Ile Pro Lys Phe Arg Pro
35 40 45
Gly Pro Arg Trp Cys Ala Val Gln Gly Gln Val Asp Glu Lys Thr
50 55 60
Phe Leu His Tyr Asp Cys Gly Asn Lys Thr Val Thr Pro Val Ser
65 70 75
Pro Leu Gly Lys Lys Leu Asn Val Thr Thr Ala Trp Lys Ala Gln
80 85 90
Asn Pro Val Leu Arg Glu Val Val Asp Ile Leu Thr Glu Gln Leu
95 100 105
Arg Asp Ile Gln Leu Glu Asn Tyr Thr Pro Lys Glu Pro Leu Thr
110 115 120
Leu Gln Ala Arg Met Ser Cys Glu Gln Lys Ala Glu Gly His Ser
125 130 135
Ser Gly Ser Trp Gln Phe Ser Phe Asp Gly Gln Ile Phe Leu Leu
140 145 150
Phe Asp Ser Glu Lys Arg Met Trp Thr Thr Val His Pro Gly Ala
155 160 165
Arg Lys Met Lys Glu Lys Trp Glu Asn Asp Lys Val Val Ala Met
170 175 180
Ser Phe His Tyr Phe Ser Met Gly Asp Cys Ile Gly Trp Leu Glu
185 190 195
Asp Phe Leu Met Gly Met Asp Ser Thr Leu Glu Pro Ser Ala Gly
200 205 210
Ala Pro Leu Ala Met Ser Ser Gly Thr Thr Gln Leu Arg Ala Thr
215 220 225
Ala Thr Thr Leu Ile Leu Cys Cys Leu Leu Ile Ile Leu Pro Cys
230 235 240
Phe Ile Leu Pro Gly Ile
245

<210> 226

<211> 735

<212> DNA

<213> Homo sapiens

<400> 226

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caagttatat accgtggaat ggagttgatc ccaaccataa catcgtggag 150

gggttttaatt ttggtggtag ccctcaccca attctggtgt ggctttcttt 200
 gcagaggatt ccaccttcaa aatcatgaac tctggctgtt gatcaaaaga 250
 gaatttggat tctactctaa agtcaatat aggacttggc aaaagaagct 300
 agcagaagac tcaacctggc ctcccataaa caggacagat tattcaggtg 350
 atggcaaaaaa tggattctac atcaacggag gctatgaaag ccatgaacag 400
 attccaaaaa gaaaactcaa attgggaggc caaccacag aacagcattt 450
 ctgggccagg ctgtaatcag aattgtcgtc gtacatgctc aacagcattg 500
 cttttttccc caaaattaac acattgtgga gaagtgatga tactctcccc 550
 ttacctttcc tctctccatt caagcattca aagtatattt tcaatgaatt 600
 aaaccttgca gcaagggacc ttagataggc ttattctgac tgtatgcttt 650
 accaatgaga gaaaaaaatg catttctgt atcatccttt tcaataaact 700
 gtattcattt tgaaaaaaa aaaaaaaaaa aaaaa 735

<210> 227
 <211> 115
 <212> PRT
 <213> Homo sapiens

<400> 227
 Met Glu Leu Ile Pro Thr Ile Thr Ser Trp Arg Val Leu Ile Leu
 1 5 10 15
 Val Val Ala Leu Thr Gln Phe Trp Cys Gly Phe Leu Cys Arg Gly
 20 25 30
 Phe His Leu Gln Asn His Glu Leu Trp Leu Leu Ile Lys Arg Glu
 35 40 45
 Phe Gly Phe Tyr Ser Lys Ser Gln Tyr Arg Thr Trp Gln Lys Lys
 50 55 60
 Leu Ala Glu Asp Ser Thr Trp Pro Pro Ile Asn Arg Thr Asp Tyr
 65 70 75
 Ser Gly Asp Gly Lys Asn Gly Phe Tyr Ile Asn Gly Gly Tyr Glu
 80 85 90
 Ser His Glu Gln Ile Pro Lys Arg Lys Leu Lys Leu Gly Gly Gln
 95 100 105
 Pro Thr Glu Gln His Phe Trp Ala Arg Leu
 110 115

<210> 228
 <211> 2185
 <212> DNA
 <213> Homo sapiens

<400> 228
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 cacaccatga agctcttgtg gcaggtaact gtgcaccacc acacctggaa 100

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 gtgcagccat cgctgctgcc gcctcagccg ggccccagaa ctgcccctcc 200
 gtttgcctgt gcagtaacca gttcagcaag gtggtgtgca cgcgccgggg 250
 cctctccgag gtcccgcagg gtattccctc gaacaccccg tacctcaacc 300
 tcatggagaa caacatccag atgatccagg ccgacacctt ccgccacctc 350
 caccacctgg aggtcctgca gttgggcagg aactccatcc ggcagattga 400
 ggtggggggc ttcaacggcc tggccagcct caacaccctg gagctgttcg 450
 acaactggct gacagtcac cctagcgggg cctttgaata cctgtccaag 500
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 cgccttcaac cgggtgccct ccctcatgcy cctggacttg ggggagctca 600
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 aagtatctga acttgggcat gtgcaacatt aaagacatgc ccaatctcac 700
 cccctggtg gggctggagg agctggagat gtcagggaac cacttccctg 750
 agatcaggcc tggctccttc catggcctga gctccctcaa gaagctctgg 800
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 ggcttcactt gtggaactca acttggccca caataacctc tcttctttgc 900
 cccatgacct ctttaccocg ctgaggtacc tgggtggagt gcatctacac 950
 cacaaccctt ggaactgtga ttgtgacatt ctgtggctag cctggtggct 1000
 tcgagagtat ataccacca attccacctg ctgtggccgc tgtcatgctc 1050
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 cagtgcctctg ccccttcat catggacgca cctcgagacc tcaacatttc 1150
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 tgaagtgggt gctgccaat gggacagtgc tcagccacgc ctcccgccac 1250
 ccaaggatct ctgtcctcaa cgacggcacc ttgaactttt cccacgtgct 1300
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 ggcccactgg acagaaaaca gcctggggaa ctctctgcac cccacagtca 1950
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 caggaaactc aaatatgact cccctcccc aaaaaactta taaaatgcaa 2050
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 attatattaa aatttaaaga caaaaagtca aaaca 2185

<210> 229
 <211> 653
 <212> PRT
 <213> Homo sapiens

<400> 229
 Met Lys Leu Leu Trp Gln Val Thr Val His His His Thr Trp Asn
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 Ala Ile Leu Leu Pro Phe Val Tyr Leu Thr Ala Gln Val Trp Ile
 20 25 30
 Leu Cys Ala Ala Ile Ala Ala Ala Ala Ser Ala Gly Pro Gln Asn
 35 40 45
 Cys Pro Ser Val Cys Ser Cys Ser Asn Gln Phe Ser Lys Val Val
 50 55 60
 Cys Thr Arg Arg Gly Leu Ser Glu Val Pro Gln Gly Ile Pro Ser
 65 70 75
 Asn Thr Arg Tyr Leu Asn Leu Met Glu Asn Asn Ile Gln Met Ile
 80 85 90
 Gln Ala Asp Thr Phe Arg His Leu His His Leu Glu Val Leu Gln
 95 100 105
 Leu Gly Arg Asn Ser Ile Arg Gln Ile Glu Val Gly Ala Phe Asn
 110 115 120
 Gly Leu Ala Ser Leu Asn Thr Leu Glu Leu Phe Asp Asn Trp Leu
 125 130 135
 Thr Val Ile Pro Ser Gly Ala Phe Glu Tyr Leu Ser Lys Leu Arg
 140 145 150
 Glu Leu Trp Leu Arg Asn Asn Pro Ile Glu Ser Ile Pro Ser Tyr
 155 160 165
 Ala Phe Asn Arg Val Pro Ser Leu Met Arg Leu Asp Leu Gly Glu
 170 175 180
 Leu Lys Lys Leu Glu Tyr Ile Ser Glu Gly Ala Phe Glu Gly Leu

| | | |
|-------------------------------------|-------------------------|-----|
| 500 | 505 | 510 |
| Thr Thr Asp Lys Met Gln Thr Ser Leu | Asp Glu Val Met Lys Thr | |
| 515 | 520 | 525 |
| Thr Lys Ile Ile Ile Gly Cys Phe Val | Ala Val Thr Leu Leu Ala | |
| 530 | 535 | 540 |
| Ala Ala Met Leu Ile Val Phe Tyr Lys | Leu Arg Lys Arg His Gln | |
| 545 | 550 | 555 |
| Gln Arg Ser Thr Val Thr Ala Ala Arg | Thr Val Glu Ile Ile Gln | |
| 560 | 565 | 570 |
| Val Asp Glu Asp Ile Pro Ala Ala Thr | Ser Ala Ala Ala Thr Ala | |
| 575 | 580 | 585 |
| Ala Pro Ser Gly Val Ser Gly Glu Gly | Ala Val Val Leu Pro Thr | |
| 590 | 595 | 600 |
| Ile His Asp His Ile Asn Tyr Asn Thr | Tyr Lys Pro Ala His Gly | |
| 605 | 610 | 615 |
| Ala His Trp Thr Glu Asn Ser Leu Gly | Asn Ser Leu His Pro Thr | |
| 620 | 625 | 630 |
| Val Thr Thr Ile Ser Glu Pro Tyr Ile | Ile Gln Thr His Thr Lys | |
| 635 | 640 | 645 |
| Asp Lys Val Gln Glu Thr Gln Ile | | |
| 650 | | |

<210> 230
 <211> 2846
 <212> DNA
 <213> Homo sapiens

<400> 230
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 tacacagtca ttaatgaagc ctgccctgga gcagagtgga atatcatgtg 150
 tcgggagtgc tgtgaatatg atcagattga gtgcgtctgc cccggaaaga 200
 gggaagtctg gggttatacc atcccttgct gcaggaatga ggagaatgag 250
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 aagctatccc cttaaagctc actgtgaatg gaccattcat gctaaacctg 500
 ggtttgtcat ccaactaaga tttgtcatgt tgagtctgga gtttgactac 550
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<210> 231
<211> 720
<212> PRT
<213> Homo sapiens

<400> 231
Met Glu Leu Gly Cys Trp Thr Gln Leu Gly Leu Thr Phe Leu Gln
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20 25 30
Glu Ala Cys Pro Gly Ala Glu Trp Asn Ile Met Cys Arg Glu Cys
35 40 45
Cys Glu Tyr Asp Gln Ile Glu Cys Val Cys Pro Gly Lys Arg Glu
50 55 60
Val Val Gly Tyr Thr Ile Pro Cys Cys Arg Asn Glu Glu Asn Glu
65 70 75
Cys Asp Ser Cys Leu Ile His Pro Gly Cys Thr Ile Phe Glu Asn
80 85 90
Cys Lys Ser Cys Arg Asn Gly Ser Trp Gly Gly Thr Leu Asp Asp
95 100 105
Phe Tyr Val Lys Gly Phe Tyr Cys Ala Glu Cys Arg Ala Gly Trp
110 115 120
Tyr Gly Gly Asp Cys Met Arg Cys Gly Gln Val Leu Arg Ala Pro
125 130 135
Lys Gly Gln Ile Leu Leu Glu Ser Tyr Pro Leu Asn Ala His Cys
140 145 150
Glu Trp Thr Ile His Ala Lys Pro Gly Phe Val Ile Gln Leu Arg
155 160 165

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Phe | Val | Met | Leu | Ser | Leu | Glu | Phe | Asp | Tyr | Met | Cys | Gln | Tyr | Asp | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Tyr | Val | Glu | Val | Arg | Asp | Gly | Asp | Asn | Arg | Asp | Gly | Gln | Ile | Ile | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Lys | Arg | Val | Cys | Gly | Asn | Glu | Arg | Pro | Ala | Pro | Ile | Gln | Ser | Ile | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Gly | Ser | Ser | Leu | His | Val | Leu | Phe | His | Ser | Asp | Gly | Ser | Lys | Asn | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Phe | Asp | Gly | Phe | His | Ala | Ile | Tyr | Glu | Glu | Ile | Thr | Ala | Cys | Ser | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Ser | Ser | Pro | Cys | Phe | His | Asp | Gly | Thr | Cys | Val | Leu | Asp | Lys | Ala | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gly | Ser | Tyr | Lys | Cys | Ala | Cys | Leu | Ala | Gly | Tyr | Thr | Gly | Gln | Arg | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Cys | Glu | Asn | Leu | Leu | Glu | Glu | Arg | Asn | Cys | Ser | Asp | Pro | Gly | Gly | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Pro | Val | Asn | Gly | Tyr | Gln | Lys | Ile | Thr | Gly | Gly | Pro | Gly | Leu | Ile | |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Asn | Gly | Arg | His | Ala | Lys | Ile | Gly | Thr | Val | Val | Ser | Phe | Phe | Cys | |
| | | | | 305 | | | | | 310 | | | | | 315 | |
| Asn | Asn | Ser | Tyr | Val | Leu | Ser | Gly | Asn | Glu | Lys | Arg | Thr | Cys | Gln | |
| | | | | 320 | | | | | 325 | | | | | 330 | |
| Gln | Asn | Gly | Glu | Trp | Ser | Gly | Lys | Gln | Pro | Ile | Cys | Ile | Lys | Ala | |
| | | | | 335 | | | | | 340 | | | | | 345 | |
| Cys | Arg | Glu | Pro | Lys | Ile | Ser | Asp | Leu | Val | Arg | Arg | Arg | Val | Leu | |
| | | | | 350 | | | | | 355 | | | | | 360 | |
| Pro | Met | Gln | Val | Gln | Ser | Arg | Glu | Thr | Pro | Leu | His | Gln | Leu | Tyr | |
| | | | | 365 | | | | | 370 | | | | | 375 | |
| Ser | Ala | Ala | Phe | Ser | Lys | Gln | Lys | Leu | Gln | Ser | Ala | Pro | Thr | Lys | |
| | | | | 380 | | | | | 385 | | | | | 390 | |
| Lys | Pro | Ala | Leu | Pro | Phe | Gly | Asp | Leu | Pro | Met | Gly | Tyr | Gln | His | |
| | | | | 395 | | | | | 400 | | | | | 405 | |
| Leu | His | Thr | Gln | Leu | Gln | Tyr | Glu | Cys | Ile | Ser | Pro | Phe | Tyr | Arg | |
| | | | | 410 | | | | | 415 | | | | | 420 | |
| Arg | Leu | Gly | Ser | Ser | Arg | Arg | Thr | Cys | Leu | Arg | Thr | Gly | Lys | Trp | |
| | | | | 425 | | | | | 430 | | | | | 435 | |
| Ser | Gly | Arg | Ala | Pro | Ser | Cys | Ile | Pro | Ile | Cys | Gly | Lys | Ile | Glu | |
| | | | | 440 | | | | | 445 | | | | | 450 | |
| Asn | Ile | Thr | Ala | Pro | Lys | Thr | Gln | Gly | Leu | Arg | Trp | Pro | Trp | Gln | |
| | | | | 455 | | | | | 460 | | | | | 465 | |
| Ala | Ala | Ile | Tyr | Arg | Arg | Thr | Ser | Gly | Val | His | Asp | Gly | Ser | Leu | |
| | | | | 470 | | | | | 475 | | | | | 480 | |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Lys | Gly | Ala | Trp | Phe | Leu | Val | Cys | Ser | Gly | Ala | Leu | Val | Asn |
| | | | | 485 | | | | | 490 | | | | | 495 |
| Glu | Arg | Thr | Val | Val | Val | Ala | Ala | His | Cys | Val | Thr | Asp | Leu | Gly |
| | | | | 500 | | | | | 505 | | | | | 510 |
| Lys | Val | Thr | Met | Ile | Lys | Thr | Ala | Asp | Leu | Lys | Val | Val | Leu | Gly |
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| Lys | Phe | Tyr | Arg | Asp | Asp | Asp | Arg | Asp | Glu | Lys | Thr | Ile | Gln | Ser |
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| Leu | Gln | Ile | Ser | Ala | Ile | Ile | Leu | His | Pro | Asn | Tyr | Asp | Pro | Ile |
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| Leu | Leu | Asp | Ala | Asp | Ile | Ala | Ile | Leu | Lys | Leu | Leu | Asp | Lys | Ala |
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| Arg | Ile | Ser | Thr | Arg | Val | Gln | Pro | Ile | Cys | Leu | Ala | Ala | Ser | Arg |
| | | | | 575 | | | | | 580 | | | | | 585 |
| Asp | Leu | Ser | Thr | Ser | Phe | Gln | Glu | Ser | His | Ile | Thr | Val | Ala | Gly |
| | | | | 590 | | | | | 595 | | | | | 600 |
| Trp | Asn | Val | Leu | Ala | Asp | Val | Arg | Ser | Pro | Gly | Phe | Lys | Asn | Asp |
| | | | | 605 | | | | | 610 | | | | | 615 |
| Thr | Leu | Arg | Ser | Gly | Val | Val | Ser | Val | Val | Asp | Ser | Leu | Leu | Cys |
| | | | | 620 | | | | | 625 | | | | | 630 |
| Glu | Glu | Gln | His | Glu | Asp | His | Gly | Ile | Pro | Val | Ser | Val | Thr | Asp |
| | | | | 635 | | | | | 640 | | | | | 645 |
| Asn | Met | Phe | Cys | Ala | Ser | Trp | Glu | Pro | Thr | Ala | Pro | Ser | Asp | Ile |
| | | | | 650 | | | | | 655 | | | | | 660 |
| Cys | Thr | Ala | Glu | Thr | Gly | Gly | Ile | Ala | Ala | Val | Ser | Phe | Pro | Gly |
| | | | | 665 | | | | | 670 | | | | | 675 |
| Arg | Ala | Ser | Pro | Glu | Pro | Arg | Trp | His | Leu | Met | Gly | Leu | Val | Ser |
| | | | | 680 | | | | | 685 | | | | | 690 |
| Trp | Ser | Tyr | Asp | Lys | Thr | Cys | Ser | His | Arg | Leu | Ser | Thr | Ala | Phe |
| | | | | 695 | | | | | 700 | | | | | 705 |
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<211> 344

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<220>

<221> N-glycosylation sites

<222> 4-7, 220-223, 335-338

<223> N-glycosylation sites

<220>

<221> Xylose isomerase proteins

<222> 191-201

<223> Xylose isomerase proteins

<400> 236

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| Met | Gly | Phe | Asn | Leu | Thr | Phe | His | Leu | Ser | Tyr | Lys | Phe | Arg | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |

| | | | | | | | | | | | | | | | | | | |
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| Leu | Leu | Leu | Leu | Thr | Leu | Cys | Leu | Thr | Val | Val | Gly | Trp | Ala | Thr | | 20 | 25 | 30 |
| Ser | Asn | Tyr | Phe | Val | Gly | Ala | Ile | Gln | Glu | Ile | Pro | Lys | Ala | Lys | | 35 | 40 | 45 |
| Glu | Phe | Met | Ala | Asn | Phe | His | Lys | Thr | Leu | Ile | Leu | Gly | Lys | Gly | | 50 | 55 | 60 |
| Lys | Thr | Leu | Thr | Asn | Glu | Ala | Ser | Thr | Lys | Lys | Val | Glu | Leu | Asp | | 65 | 70 | 75 |
| Asn | Cys | Pro | Ser | Val | Ser | Pro | Tyr | Leu | Arg | Gly | Gln | Ser | Lys | Leu | | 80 | 85 | 90 |
| Ile | Phe | Lys | Pro | Asp | Leu | Thr | Leu | Glu | Glu | Val | Gln | Ala | Glu | Asn | | 95 | 100 | 105 |
| Pro | Lys | Val | Ser | Arg | Gly | Arg | Tyr | Arg | Pro | Gln | Glu | Cys | Lys | Ala | | 110 | 115 | 120 |
| Leu | Gln | Arg | Val | Ala | Ile | Leu | Val | Pro | His | Arg | Asn | Arg | Glu | Lys | | 125 | 130 | 135 |
| His | Leu | Met | Tyr | Leu | Leu | Glu | His | Leu | His | Pro | Phe | Leu | Gln | Arg | | 140 | 145 | 150 |
| Gln | Gln | Leu | Asp | Tyr | Gly | Ile | Tyr | Val | Ile | His | Gln | Ala | Glu | Gly | | 155 | 160 | 165 |
| Lys | Lys | Phe | Asn | Arg | Ala | Lys | Leu | Leu | Asn | Val | Gly | Tyr | Leu | Glu | | 170 | 175 | 180 |
| Ala | Leu | Lys | Glu | Glu | Asn | Trp | Asp | Cys | Phe | Ile | Phe | His | Asp | Val | | 185 | 190 | 195 |
| Asp | Leu | Val | Pro | Glu | Asn | Asp | Phe | Asn | Leu | Tyr | Lys | Cys | Glu | Glu | | 200 | 205 | 210 |
| His | Pro | Lys | His | Leu | Val | Val | Gly | Arg | Asn | Ser | Thr | Gly | Tyr | Arg | | 215 | 220 | 225 |
| Leu | Arg | Tyr | Ser | Gly | Tyr | Phe | Gly | Gly | Val | Thr | Ala | Leu | Ser | Arg | | 230 | 235 | 240 |
| Glu | Gln | Phe | Phe | Lys | Val | Asn | Gly | Phe | Ser | Asn | Asn | Tyr | Trp | Gly | | 245 | 250 | 255 |
| Trp | Gly | Gly | Glu | Asp | Asp | Asp | Leu | Arg | Leu | Arg | Val | Glu | Leu | Gln | | 260 | 265 | 270 |
| Arg | Met | Lys | Ile | Ser | Arg | Pro | Leu | Pro | Glu | Val | Gly | Lys | Tyr | Thr | | 275 | 280 | 285 |
| Met | Val | Phe | His | Thr | Arg | Asp | Lys | Gly | Asn | Glu | Val | Asn | Ala | Glu | | 290 | 295 | 300 |
| Arg | Met | Lys | Leu | Leu | His | Gln | Val | Ser | Arg | Val | Trp | Arg | Thr | Asp | | 305 | 310 | 315 |
| Gly | Leu | Ser | Ser | Cys | Ser | Tyr | Lys | Leu | Val | Ser | Val | Glu | His | Asn | | 320 | 325 | 330 |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Asn | Tyr | Ser | Ile | Ile | Gly | Thr | Phe | Thr | Val | Lys | Leu | Lys | Val |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Val | Ala | Glu | Trp | Glu | Glu | Val | Glu | Pro | Asp | Ala | Thr | Arg | Ala | Val |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Lys | Gln | Lys | Thr | Gly | Asp | Phe | Ser | Ala | Ser | Leu | Lys | Leu | Gln | Glu |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Leu | Arg | Gly | Ile | Gln | Val | Leu | Gly | Pro | Thr | Leu | Ile | Gln | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Phe | Gln | Lys | Met | Thr | Val | Thr | Leu | Asn | Phe | Leu | Gly | Ser | Pro | Pro |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Leu | Thr | Val | Cys | Trp | Arg | Leu | Lys | Pro | Glu | Cys | Leu | Pro | Leu | Glu |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Glu | Gly | Glu | Cys | His | Pro | Val | Ser | Val | Ala | Ser | Thr | Ala | Tyr | Asn |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Leu | Thr | His | Thr | Phe | Arg | Asp | Pro | Gly | Asp | Tyr | Cys | Phe | Ser | Ile |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Arg | Ala | Glu | Asn | Ile | Ile | Ser | Lys | Thr | His | Gln | Tyr | His | Lys | Ile |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Gln | Val | Trp | Pro | Ser | Arg | Ile | Gln | Pro | Ala | Val | Phe | Ala | Phe | Pro |
| | | | | 335 | | | | | 340 | | | | | 345 |
| Cys | Ala | Thr | Leu | Ile | Thr | Val | Met | Leu | Ala | Phe | Ile | Met | Tyr | Met |
| | | | | 350 | | | | | 355 | | | | | 360 |
| Thr | Leu | Arg | Asn | Ala | Thr | Gln | Gln | Lys | Asp | Met | Val | Glu | Asn | Pro |
| | | | | 365 | | | | | 370 | | | | | 375 |
| Glu | Pro | Pro | Ser | Gly | Val | Arg | Cys | Cys | Cys | Gln | Met | Cys | Cys | Gly |
| | | | | 380 | | | | | 385 | | | | | 390 |
| Pro | Phe | Leu | Leu | Glu | Thr | Pro | Ser | Glu | Tyr | Leu | Glu | Ile | Val | Arg |
| | | | | 395 | | | | | 400 | | | | | 405 |
| Glu | Asn | His | Gly | Leu | Leu | Pro | Pro | Leu | Tyr | Lys | Ser | Val | Lys | Thr |
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Tyr Thr Val

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<213> Homo sapiens

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35 40 45
Arg Ala Ser Trp Met Pro Met Phe Gln Arg Arg Arg Arg Arg Asp
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<213> Homo sapiens

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<211> 456

<212> PRT

<213> Homo sapiens

<400> 248

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Leu | Leu | Leu | Pro | Phe | Asp | Ser | Leu | Ile | Val | Asn | Leu | Leu |
| 1 | | | | 5 | | | | | 10 | | | | 15 | |
| Gly | Ile | Ser | Leu | Thr | Val | Leu | Phe | Thr | Leu | Leu | Leu | Val | Phe | Ile |
| | | | | 20 | | | | | 25 | | | | 30 | |
| Ile | Val | Pro | Ala | Ile | Phe | Gly | Val | Ser | Phe | Gly | Ile | Arg | Lys | Leu |
| | | | | 35 | | | | | 40 | | | | 45 | |
| Tyr | Met | Lys | Ser | Leu | Leu | Lys | Ile | Phe | Ala | Trp | Ala | Thr | Leu | Arg |
| | | | | 50 | | | | | 55 | | | | 60 | |
| Met | Glu | Arg | Gly | Ala | Lys | Glu | Lys | Asn | His | Gln | Leu | Tyr | Lys | Pro |
| | | | | 65 | | | | | 70 | | | | 75 | |

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|
| Tyr | Thr | Asn | Gly | Ile | Ile | Ala | Lys | Asp | Pro | Thr | Ser | Leu | Glu | Glu | | 80 | 85 | 90 |
| Glu | Ile | Lys | Glu | Ile | Arg | Arg | Ser | Gly | Ser | Ser | Lys | Ala | Leu | Asp | | 95 | 100 | 105 |
| Asn | Thr | Pro | Glu | Phe | Glu | Leu | Ser | Asp | Ile | Phe | Tyr | Phe | Cys | Arg | | 110 | 115 | 120 |
| Lys | Gly | Met | Glu | Thr | Ile | Met | Asp | Asp | Glu | Val | Thr | Lys | Arg | Phe | | 125 | 130 | 135 |
| Ser | Ala | Glu | Glu | Leu | Glu | Ser | Trp | Asn | Leu | Leu | Ser | Arg | Thr | Asn | | 140 | 145 | 150 |
| Tyr | Asn | Phe | Gln | Tyr | Ile | Ser | Leu | Arg | Leu | Thr | Val | Leu | Trp | Gly | | 155 | 160 | 165 |
| Leu | Gly | Val | Leu | Ile | Arg | Tyr | Cys | Phe | Leu | Leu | Pro | Leu | Arg | Ile | | 170 | 175 | 180 |
| Ala | Leu | Ala | Phe | Thr | Gly | Ile | Ser | Leu | Leu | Val | Val | Gly | Thr | Thr | | 185 | 190 | 195 |
| Val | Val | Gly | Tyr | Leu | Pro | Asn | Gly | Arg | Phe | Lys | Glu | Phe | Met | Ser | | 200 | 205 | 210 |
| Lys | His | Val | His | Leu | Met | Cys | Tyr | Arg | Ile | Cys | Val | Arg | Ala | Leu | | 215 | 220 | 225 |
| Thr | Ala | Ile | Ile | Thr | Tyr | His | Asp | Arg | Glu | Asn | Arg | Pro | Arg | Asn | | 230 | 235 | 240 |
| Gly | Gly | Ile | Cys | Val | Ala | Asn | His | Thr | Ser | Pro | Ile | Asp | Val | Ile | | 245 | 250 | 255 |
| Ile | Leu | Ala | Ser | Asp | Gly | Tyr | Tyr | Ala | Met | Val | Gly | Gln | Val | His | | 260 | 265 | 270 |
| Gly | Gly | Leu | Met | Gly | Val | Ile | Gln | Arg | Ala | Met | Val | Lys | Ala | Cys | | 275 | 280 | 285 |
| Pro | His | Val | Trp | Phe | Glu | Arg | Ser | Glu | Val | Lys | Asp | Arg | His | Leu | | 290 | 295 | 300 |
| Val | Ala | Lys | Arg | Leu | Thr | Glu | His | Val | Gln | Asp | Lys | Ser | Lys | Leu | | 305 | 310 | 315 |
| Pro | Ile | Leu | Ile | Phe | Pro | Glu | Gly | Thr | Cys | Ile | Asn | Asn | Thr | Ser | | 320 | 325 | 330 |
| Val | Met | Met | Phe | Lys | Lys | Gly | Ser | Phe | Glu | Ile | Gly | Ala | Thr | Val | | 335 | 340 | 345 |
| Tyr | Pro | Val | Ala | Ile | Lys | Tyr | Asp | Pro | Gln | Phe | Gly | Asp | Ala | Phe | | 350 | 355 | 360 |
| Trp | Asn | Ser | Ser | Lys | Tyr | Gly | Met | Val | Thr | Tyr | Leu | Leu | Arg | Met | | 365 | 370 | 375 |
| Met | Thr | Ser | Trp | Ala | Ile | Val | Cys | Ser | Val | Trp | Tyr | Leu | Pro | Pro | | 380 | 385 | 390 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Arg | Glu | Ala | Asp | Glu | Asp | Ala | Val | Gln | Phe | Ala | Asn | Arg |
| | | | | 395 | | | | | 400 | | | | | 405 |
| Val | Lys | Ser | Ala | Ile | Ala | Arg | Gln | Gly | Gly | Leu | Val | Asp | Leu | Leu |
| | | | | 410 | | | | | 415 | | | | | 420 |
| Trp | Asp | Gly | Gly | Leu | Lys | Arg | Glu | Lys | Val | Lys | Asp | Thr | Phe | Lys |
| | | | | 425 | | | | | 430 | | | | | 435 |
| Glu | Glu | Gln | Gln | Lys | Leu | Tyr | Ser | Lys | Met | Ile | Val | Gly | Asn | His |
| | | | | 440 | | | | | 445 | | | | | 450 |
| Lys | Asp | Arg | Ser | Arg | Ser | | | | | | | | | |
| | | | | 455 | | | | | | | | | | |

<210> 249
 <211> 1103
 <212> DNA
 <213> Homo sapiens

<400> 249
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 gccctcggca gcctcggcct ccacacctgg caggcccagg ctgttccac 150
 catcctgccc ctgggcctgg ctccagacac ctttgacgat acctatgtgg 200
 gttgtgcaga ggagatggag gagaaggcag cccccctgct aaaggaggaa 250
 atggcccacc atgccctgct gcgggaatcc tgggaggcag cccaggagac 300
 ctgggaggac aagcgtcgag ggcttaoctt gccccctggc ttcaaagccc 350
 agaatggaat agccattatg gtctacacca actcatcgaa caccttgtac 400
 tgggagttga atcaggccgt gcggacgggc ggaggctccc gggagctcta 450
 catgaggcac tttcccttca aggccctgca tttctacctg atccggggccc 500
 tgcagctgct gcgaggcagt gggggctgca gcaggggacc tggggagggtg 550
 gtgttccgag gtgtgggcag ccttcgcttt gaaccaaga ggctggggga 600
 ctctgtccgc ttggggcagt ttgcctccag ctccctggat aaggcagtgg 650
 cccacagatt tggggagaag aggcggggct gtgtgtctgc gccaggggtg 700
 cagctagggt cacaatctga gggggcctcc tctctgcccc octggaagac 750
 tctgctcttg gccctggag agttccagct ctcagggtt gggccctgaa 800
 agtccaacat ctgccactta ggagccctgg gaacgggtga ccttcatatg 850
 acgaagaggc acctccagca gccttgagaa gcaagaacat ggttcoggac 900
 ccagccctag cagccttctc cccaaccagg atgttggcct ggggaggcca 950
 cagcagggtg gagggaaact tgctatgtga tggggacttc ctgggacaag 1000
 caaggaaagt actgaggcag ccacttgatt gaacggtgtt gcaatgtgga 1050

gacatggagt tttattgagg tagctacgtg attaaatggt attgcagtgt 1100

gga 1103

<210> 250

<211> 240

<212> PRT

<213> Homo sapiens

<400> 250

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Ala | Leu | Ala | Ala | Leu | Met | Ile | Ala | Leu | Gly | Ser | Leu | Gly | Leu | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| His | Thr | Trp | Gln | Ala | Gln | Ala | Val | Pro | Thr | Ile | Leu | Pro | Leu | Gly | |
| | | | 20 | | | | | | 25 | | | | | 30 | |
| Leu | Ala | Pro | Asp | Thr | Phe | Asp | Asp | Thr | Tyr | Val | Gly | Cys | Ala | Glu | |
| | | | 35 | | | | | | 40 | | | | | 45 | |
| Glu | Met | Glu | Glu | Lys | Ala | Ala | Pro | Leu | Leu | Lys | Glu | Glu | Met | Ala | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| His | His | Ala | Leu | Leu | Arg | Glu | Ser | Trp | Glu | Ala | Ala | Gln | Glu | Thr | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Trp | Glu | Asp | Lys | Arg | Arg | Gly | Leu | Thr | Leu | Pro | Pro | Gly | Phe | Lys | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Ala | Gln | Asn | Gly | Ile | Ala | Ile | Met | Val | Tyr | Thr | Asn | Ser | Ser | Asn | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Thr | Leu | Tyr | Trp | Glu | Leu | Asn | Gln | Ala | Val | Arg | Thr | Gly | Gly | Gly | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Ser | Arg | Glu | Leu | Tyr | Met | Arg | His | Phe | Pro | Phe | Lys | Ala | Leu | His | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Phe | Tyr | Leu | Ile | Arg | Ala | Leu | Gln | Leu | Leu | Arg | Gly | Ser | Gly | Gly | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Cys | Ser | Arg | Gly | Pro | Gly | Glu | Val | Val | Phe | Arg | Gly | Val | Gly | Ser | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Leu | Arg | Phe | Glu | Pro | Lys | Arg | Leu | Gly | Asp | Ser | Val | Arg | Leu | Gly | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Gln | Phe | Ala | Ser | Ser | Ser | Leu | Asp | Lys | Ala | Val | Ala | His | Arg | Phe | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Gly | Glu | Lys | Arg | Arg | Gly | Cys | Val | Ser | Ala | Pro | Gly | Val | Gln | Leu | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Gly | Ser | Gln | Ser | Glu | Gly | Ala | Ser | Ser | Leu | Pro | Pro | Trp | Lys | Thr | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Leu | Leu | Leu | Ala | Pro | Gly | Glu | Phe | Gln | Leu | Ser | Gly | Val | Gly | Pro | |
| | | | | 230 | | | | | 235 | | | | | 240 | |

<210> 251

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 251

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<210> 252

<211> 1076

<212> DNA

<213> Homo sapiens

<400> 252

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caacatgcct caccctcatc tatatccttt ggcagctcac agggtcagca 100

gcctctggac ccgtgaaaga gctggtcggt tccgttggtg gggccgtgac 150

tttccccctg aagtccaaag taaagcaagt tgactctatt gtctggacct 200

tcaacacaaac ccctcttgtc accatacagc cagaaggggg cactatcata 250

gtgacccaaa atcgtaatag ggagagagta gacttcccag atggaggcta 300

ctccctgaag ctacgcaaac tgaagaagaa tgactcaggg atctactatg 350

tggggatata cagctcatca ctccagcagc cctccacca ggagtacgtg 400

ctgcatgtct acgagcacct gtcaaagcct aaagtcacca tgggtctgca 450

gagcaataag aatggcacct gtgtgaccaa tctgacatgc tgcattgaac 500

atggggaaga ggatgtgatt tatacctgga aggcctggg gcaagcagcc 550

aatgagtccc ataatgggtc catcctcccc atctcctgga gatggggaga 600

aagtgatatg accttcatct gogttgccag gaaccctgtc agcagaaact 650

tctcaagccc catccttgcc aggaagctct gtgaagggtc tgctgatgac 700

ccagattcct ccattggtcct cctgtgtctc ctgttggtgc cctcctgct 750

cagtctcttt gtactggggc tatttctttg gtttctgaag agagagagac 800

aagaagagta cattgaagag aagaagagag tggacatttg tcgggaaact 850

cctaacatat gccccattc tggagagaac acagagtacg acacaatccc 900

tcacactaat agaacaatcc taaaggaaga tccagcaaact acggtttact 950

ccactgtgga aataaccgaaa aagatggaaa atccccactc actgctcacg 1000

atgccagaca caccaaggct atttgccat gagaatgtta tctagacagc 1050

agtgactcc cctaagtctc tgctca 1076

<210> 253

<211> 335

<212> PRT

<213> Homo sapiens

<400> 253

Met Ala Gly Ser Pro Thr Cys Leu Thr Leu Ile Tyr Ile Leu Trp

| 1 | 5 | 10 | 15 |
|---------------------|-----------------|-------------------------|-------------------|
| Gln Leu Thr Gly Ser | Ala Ala Ser Gly | Pro Val Lys Glu Leu Val | 20 25 30 |
| Gly Ser Val Gly Gly | Ala Val Thr Phe | Pro Leu Lys Ser Lys Val | 35 40 45 |
| Lys Gln Val Asp Ser | Ile Val Trp Thr | Phe Asn Thr Thr Pro Leu | 50 55 60 |
| Val Thr Ile Gln Pro | Glu Gly Gly Thr | Ile Ile Val Thr Gln Asn | 65 70 75 |
| Arg Asn Arg Glu Arg | Val Asp Phe Pro | Asp Gly Gly Tyr Ser Leu | 80 85 90 |
| Lys Leu Ser Lys Leu | Lys Lys Asn Asp | Ser Gly Ile Tyr Tyr Val | 95 100 105 |
| Gly Ile Tyr Ser Ser | Ser Leu Gln Gln | Pro Ser Thr Gln Glu Tyr | 110 115 120 |
| Val Leu His Val Tyr | Glu His Leu Ser | Lys Pro Lys Val Thr Met | 125 130 135 |
| Gly Leu Gln Ser Asn | Lys Asn Gly Thr | Cys Val Thr Asn Leu Thr | 140 145 150 |
| Cys Cys Met Glu His | Gly Glu Glu Asp | Val Ile Tyr Thr Trp Lys | 155 160 165 |
| Ala Leu Gly Gln Ala | Ala Asn Glu Ser | His Asn Gly Ser Ile Leu | 170 175 180 |
| Pro Ile Ser Trp Arg | Trp Gly Glu Ser | Asp Met Thr Phe Ile Cys | 185 190 195 |
| Val Ala Arg Asn Pro | Val Ser Arg Asn | Phe Ser Ser Pro Ile Leu | 200 205 210 |
| Ala Arg Lys Leu Cys | Glu Gly Ala Ala | Asp Asp Pro Asp Ser Ser | 215 220 225 |
| Met Val Leu Leu Cys | Leu Leu Leu Val | Pro Leu Leu Leu Ser Leu | 230 235 240 |
| Phe Val Leu Gly Leu | Phe Leu Trp Phe | Leu Lys Arg Glu Arg Gln | 245 250 255 |
| Glu Glu Tyr Ile Glu | Glu Lys Lys Arg | Val Asp Ile Cys Arg Glu | 260 265 270 |
| Thr Pro Asn Ile Cys | Pro His Ser Gly | Glu Asn Thr Glu Tyr Asp | 275 280 285 |
| Thr Ile Pro His Thr | Asn Arg Thr Ile | Leu Lys Glu Asp Pro Ala | 290 295 300 |
| Asn Thr Val Tyr Ser | Thr Val Glu Ile | Pro Lys Lys Met Glu Asn | 305 310 315 |
| Pro His Ser Leu Leu | Thr Met Pro Asp | Thr Pro Arg Leu Phe Ala | |

320

325

330

Tyr Glu Asn Val Ile
335

<210> 254
<211> 1053
<212> DNA
<213> Homo sapiens

<400> 254
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gggtcagcag cctctggacc cgtgaaagag ctggtcggtt ccgttggtgg 100
ggccgtgact ttccccctga agtccaaagt aaagcaagtt gactctattg 150
tctggacctt caacacaacc cctcttgta ccatacagcc agaagggggc 200
actatcatag tgacccaaaa tcgtaatagg gagagagtag acttcccaga 250
tggaggctac tccctgaagc tcagcaaact gaagaagaat gactcaggga 300
tctactatgt ggggatatac agctcatcac tccagcagcc ctccaccag 350
gagtacgtgc tgcattgcta cgagcacctg tcaaagccta aagtcacat 400
gggtctgcag agcaataaga atggcacctg tgtgaccaat ctgacatgct 450
gcatggaaca tggggaagag gatgtgattt atacctggaa ggccctggg 500
caagcagcca atgagtccca taatgggtcc atcctcccca tctcctggag 550
atggggagaa agtgatatga ccttcatctg cgttgccagg aaccctgtca 600
gcagaaactt ctcaagcccc atccttgcca ggaagctctg tgaagggtgct 650
gctgatgacc cagattcctc catggctctc ctgtgtctcc tgttggtgcc 700
cctcctgctc agtctctttg tactggggct atttcttttg tttctgaaga 750
gagagagaca agaagagtac attgaagaga agaagagagt ggacatttgt 800
cgggaaaactc ctaacatatg cccccattct ggagagaaca cagagtacga 850
cacaatccct cacactaata gaacaatcct aaaggaagat ccagcaaata 900
cggtttactc cactgtggaa ataccgaaaa agatggaaaa tccccactca 950
ctgctcacga tgccagacac accaaggcta tttgcctatg agaatgttat 1000
ctagacagca gtgcaactccc ctaagtctct gctcaaaaaa aaaaaaaaaa 1050
aaa 1053

<210> 255
<211> 860
<212> DNA
<213> Homo sapiens

<400> 255
gaaagacgtg gtcctgacag acagacaatc ctattcccta ccaaaatgaa 50

gatgctgctg ctgctgtgtt tgggactgac cctagtctgt gtccatgcag 100
aagaagctag ttctacggga aggaacttta atgtagaaaa gattaatggg 150
gaatggcata ctattatcct ggcctctgac aaaagagaaa agatagaaga 200
acatggcaac tttagacttt ttctggagca aatccatgtc ttggagaatt 250
ccttagttct taaagtccat actgtaagag atgaagagtg ctccgaatta 300
tctatgggttg ctgacaaaac agaaaaggct ggtgaatatt ctgtgacgta 350
tgatggattc aatacattta ctatacctaa gacagactat gataactttc 400
ttatggctca cctcattaac gaaaaggatg gggaaacctt ccagctgatg 450
gggctctatg gccgagaacc agatttgagt tcagacatca aggaaagggt 500
tgcacaacta tgtgaggagc atggaatcct tagagaaaat atcattgacc 550
tatccaatgc caatcgctgc ctccaggccc gagaatgaag aatggcctga 600
gcctccagtg ttgagtggac acttctcacc aggactccac catcatccct 650
tcctatccat acagcatccc cagtataaat tctgtgatct gcattccatc 700
ctgtctcact gagaagtcca attccagtct atcaacatgt tacctaggat 750
acctcatcaa gaatcaaaga cttctttaaa tttctctttg atacaccctt 800
gacaattttt catgaaatta ttctcttcc tgttcaataa atgattaccc 850
ttgcacttaa 860

<210> 256

<211> 180

<212> PRT

<213> Homo sapiens

<400> 256

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Lys | Met | Leu | Leu | Leu | Leu | Cys | Leu | Gly | Leu | Thr | Leu | Val | Cys | 1 | 5 | 10 | 15 |
| Val | His | Ala | Glu | Glu | Ala | Ser | Ser | Thr | Gly | Arg | Asn | Phe | Asn | Val | 20 | 25 | 30 | |
| Glu | Lys | Ile | Asn | Gly | Glu | Trp | His | Thr | Ile | Ile | Leu | Ala | Ser | Asp | 35 | 40 | 45 | |
| Lys | Arg | Glu | Lys | Ile | Glu | Glu | His | Gly | Asn | Phe | Arg | Leu | Phe | Leu | 50 | 55 | 60 | |
| Glu | Gln | Ile | His | Val | Leu | Glu | Asn | Ser | Leu | Val | Leu | Lys | Val | His | 65 | 70 | 75 | |
| Thr | Val | Arg | Asp | Glu | Glu | Cys | Ser | Glu | Leu | Ser | Met | Val | Ala | Asp | 80 | 85 | 90 | |
| Lys | Thr | Glu | Lys | Ala | Gly | Glu | Tyr | Ser | Val | Thr | Tyr | Asp | Gly | Phe | 95 | 100 | 105 | |
| Asn | Thr | Phe | Thr | Ile | Pro | Lys | Thr | Asp | Tyr | Asp | Asn | Phe | Leu | Met | 110 | 115 | 120 | |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | His | Leu | Ile | Asn | Glu | Lys | Asp | Gly | Glu | Thr | Phe | Gln | Leu | Met |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Gly | Leu | Tyr | Gly | Arg | Glu | Pro | Asp | Leu | Ser | Ser | Asp | Ile | Lys | Glu |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Arg | Phe | Ala | Gln | Leu | Cys | Glu | Glu | His | Gly | Ile | Leu | Arg | Glu | Asn |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Ile | Ile | Asp | Leu | Ser | Asn | Ala | Asn | Arg | Cys | Leu | Gln | Ala | Arg | Glu |
| | | | | 170 | | | | | 175 | | | | | 180 |

<210> 257
 <211> 766
 <212> DNA
 <213> Homo sapiens

<400> 257
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 gacatcctgc aatggattca gcctgctggt tctactgctg ttaggagtag 100
 ttctcaatgc gatacctcta attgtcagct tagttgagga agaccaat 150
 tctcaaaacc ccattctctt ctttgagtgg tgggtcccag gaattatagg 200
 agcaggtctg atggccattc cagcaacaac aatgtccttg acagcaagaa 250
 aaagagcgtg ctgcaacaac agaactggaa tgtttctttc atcatttttc 300
 agtgtgatca cagtcattgg tgctctgtat tgcattgctga tatccatcca 350
 ggctctctta aaaggctctc tcatgtgtaa ttctccaagc aacagtaatg 400
 ccaattgtga attttcattg aaaaacatca gtgacattca tccagaatcc 450
 ttcaacttgc agtggttttt caatgactct tgtgcacctc ctactggttt 500
 caataaacc accagtaacg acaccatggc gagtggctgg agagcatcta 550
 gtttccactt cgattctgaa gaaaacaaac ataggcttat ccacttctca 600
 gtatttttag gtctattgct tggttggaatt ctggagggtcc tgtttgggct 650
 cagtcagata gtcacgggtt tccttggttg tctgtgtgga gtctctaagc 700
 gaagaagtca aattgtgtag tttaatggga ataaatgta agtatcagta 750
 gtttgaaaaa aaaaaa 766

<210> 258
 <211> 229
 <212> PRT
 <213> Homo sapiens

<400> 258
 Met Thr Cys Cys Glu Gly Trp Thr Ser Cys Asn Gly Phe Ser Leu
 1 5 10 15
 Leu Val Leu Leu Leu Leu Gly Val Val Leu Asn Ala Ile Pro Leu
 20 25 30
 Ile Val Ser Leu Val Glu Glu Asp Gln Phe Ser Gln Asn Pro Ile

| | 35 | 40 | 45 |
|---|-----|-----|-----|
| Ser Cys Phe Glu Trp Trp Phe Pro Gly Ile Ile Gly Ala Gly Leu | 50 | 55 | 60 |
| Met Ala Ile Pro Ala Thr Thr Met Ser Leu Thr Ala Arg Lys Arg | 65 | 70 | 75 |
| Ala Cys Cys Asn Asn Arg Thr Gly Met Phe Leu Ser Ser Phe Phe | 80 | 85 | 90 |
| Ser Val Ile Thr Val Ile Gly Ala Leu Tyr Cys Met Leu Ile Ser | 95 | 100 | 105 |
| Ile Gln Ala Leu Leu Lys Gly Pro Leu Met Cys Asn Ser Pro Ser | 110 | 115 | 120 |
| Asn Ser Asn Ala Asn Cys Glu Phe Ser Leu Lys Asn Ile Ser Asp | 125 | 130 | 135 |
| Ile His Pro Glu Ser Phe Asn Leu Gln Trp Phe Phe Asn Asp Ser | 140 | 145 | 150 |
| Cys Ala Pro Pro Thr Gly Phe Asn Lys Pro Thr Ser Asn Asp Thr | 155 | 160 | 165 |
| Met Ala Ser Gly Trp Arg Ala Ser Ser Phe His Phe Asp Ser Glu | 170 | 175 | 180 |
| Glu Asn Lys His Arg Leu Ile His Phe Ser Val Phe Leu Gly Leu | 185 | 190 | 195 |
| Leu Leu Val Gly Ile Leu Glu Val Leu Phe Gly Leu Ser Gln Ile | 200 | 205 | 210 |
| Val Ile Gly Phe Leu Gly Cys Leu Cys Gly Val Ser Lys Arg Arg | 215 | 220 | 225 |
| Ser Gln Ile Val | | | |

<210> 259
 <211> 434
 <212> DNA
 <213> Homo sapiens

<400> 259
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 caccatgagg ctgtcagtgt gtctcctgat ggtctcgctg gccctttgct 100
 gctaccaggc ccatgctctt gtctgccag ctgttgcttc tgagatcaca 150
 gtcttcttat tcttaagtga cgctgoggta aacctccaag ttgccaaact 200
 taatccacct ccagaagctc ttgcagccaa gttggaagtg aagcactgca 250
 ccgatcagat atcttttaag aaacgaactc cattgaaaaa gtcttggtgg 300
 aaatagtga aaaatgtggt gtgtgacatg taaaaatgct caacctggtt 350
 tccaaagtct ttcaacgaca ccctgatctt cactaaaaat tgtaaagggt 400

tcaacacggtt gctttaataa atcacttgcc ctgc 434

<210> 260

<211> 83

<212> PRT

<213> Homo sapiens

<400> 260

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Leu | Ser | Val | Cys | Leu | Leu | Met | Val | Ser | Leu | Ala | Leu | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Cys | Tyr | Gln | Ala | His | Ala | Leu | Val | Cys | Pro | Ala | Val | Ala | Ser | Glu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Ile | Thr | Val | Phe | Leu | Phe | Leu | Ser | Asp | Ala | Ala | Val | Asn | Leu | Gln |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Val | Ala | Lys | Leu | Asn | Pro | Pro | Pro | Glu | Ala | Leu | Ala | Ala | Lys | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Glu | Val | Lys | His | Cys | Thr | Asp | Gln | Ile | Ser | Phe | Lys | Lys | Arg | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Ser | Leu | Lys | Lys | Ser | Trp | Trp | Lys | | | | | | | |
| | | | | 80 | | | | | | | | | | |

<210> 261

<211> 636

<212> DNA

<213> Homo sapiens

<400> 261

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gcaggacact ggtgaaggag cagtgaggaa cctgcagagt cacacagttg 100
ctgaccaatt gagctgtgag cctggagcag atocgtgggc tgcagacccc 150
cgccccagtg cctctcccc tgcagccctg cccctcgaac tgtgacatgg 200
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gccaatgacc catttgccaa taaagacgat cccttctact atgactggaa 300
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ggatcgcggc agttctgagt ggcaaatgca aatacaagag cagccagaag 400
cagcacagtc ctgtacctga gaaggccatc cactcatca ctccaggctc 450
tgccactact tgctgagcac aggactggcc tccagggatg gcctgaagcc 500
taacactggc cccagcacc tctccctg ggaggcctta tcctcaagga 550
aggacttctc tccaaggga ggctgttagg ccccttctg atcaggaggc 600
ttctttatga attaaactcg cccaccacc cctca 636

<210> 262

<211> 89

<212> PRT

<213> Homo sapiens

| Variable | Mean | SD | Min | Max |
|---------------------|------|------|-----|-----|
| Age | 35.2 | 12.5 | 18 | 65 |
| Gender | 0.45 | 0.50 | 0 | 1 |
| Marital status | 0.60 | 0.49 | 0 | 1 |
| Education | 12.5 | 2.5 | 9 | 16 |
| Income | 15.2 | 8.5 | 5 | 35 |
| Health status | 0.75 | 0.43 | 0 | 1 |
| Smoking status | 0.30 | 0.46 | 0 | 1 |
| Alcohol consumption | 0.20 | 0.40 | 0 | 1 |
| Exercise frequency | 0.15 | 0.35 | 0 | 1 |
| Stress level | 0.65 | 0.48 | 0 | 1 |
| Sleep quality | 0.55 | 0.50 | 0 | 1 |
| Work satisfaction | 0.40 | 0.50 | 0 | 1 |
| Life satisfaction | 0.50 | 0.50 | 0 | 1 |

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<210> 263
<211> 1676
<212> DNA
<213> Homo sapiens
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231

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tctcctgggt cctgtacaac cttgcgaggc acccagaata ccaggagcgc 1100
tgccgacagg aggtgcaaga gcttctgaag gaccgcatc ctaaagagat 1150
tgaatgggac gacctggccc agctgccctt cctgaccatg tgcgtgaagg 1200
agagcctgag gttacatccc ccagctccct tcatctcccg atgctgcacc 1250
caggacattg ttctcccaga tggccgagtc atccccaaag gcattacctg 1300
cctcatcgat attatagggg tccatcacia cccaactgtg tggccggatc 1350
ctgaggtcta cgacccttc cgctttgacc cagagaacag caaggggagg 1400
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gcaggcgttc gccatggcgg agatgaaagt ggtcctggcg ttgatgctgc 1500
tgcaacttcg gttcctgcc aaccacactg agccccgcag gaagctggaa 1550
ttgatcatgc gcgccgaggg cgggctttgg ctgcgggtgg agccctgaa 1600
tgtaggcttg cagtgacttt ctgaccatc cacctgtttt ttgacagatt 1650
gtcatgaata aaacggtgct gtcaaa 1676

<210> 264
<211> 524
<212> PRT
<213> Homo sapiens

<400> 264
Met Ser Leu Leu Ser Leu Pro Trp Leu Gly Leu Arg Pro Val Ala
1 5 10 15
Met Ser Pro Trp Leu Leu Leu Leu Val Val Gly Ser Trp Leu
20 25 30
Leu Ala Arg Ile Leu Ala Trp Thr Tyr Ala Phe Tyr Asn Asn Cys
35 40 45
Arg Arg Leu Gln Cys Phe Pro Gln Pro Pro Lys Arg Asn Trp Phe
50 55 60
Trp Gly His Leu Gly Leu Ile Thr Pro Thr Glu Glu Gly Leu Lys
65 70 75
Asp Ser Thr Gln Met Ser Ala Thr Tyr Ser Gln Gly Phe Thr Val
80 85 90
Trp Leu Gly Pro Ile Ile Pro Phe Ile Val Leu Cys His Pro Asp
95 100 105
Thr Ile Arg Ser Ile Thr Asn Ala Ser Ala Ala Ile Ala Pro Lys
110 115 120
Asp Asn Leu Phe Ile Arg Phe Leu Lys Pro Trp Leu Gly Glu Gly
125 130 135

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Leu | Leu | Ser | Gly | Gly | Asp | Lys | Trp | Ser | Arg | His | Arg | Arg | Met | 140 | 145 | 150 |
| Leu | Thr | Pro | Ala | Phe | His | Phe | Asn | Ile | Leu | Lys | Ser | Tyr | Ile | Thr | 155 | 160 | 165 |
| Ile | Phe | Asn | Lys | Ser | Ala | Asn | Ile | Met | Leu | Asp | Lys | Trp | Gln | His | 170 | 175 | 180 |
| Leu | Ala | Ser | Glu | Gly | Ser | Ser | Arg | Leu | Asp | Met | Phe | Glu | His | Ile | 185 | 190 | 195 |
| Ser | Leu | Met | Thr | Leu | Asp | Ser | Leu | Gln | Lys | Cys | Ile | Phe | Ser | Phe | 200 | 205 | 210 |
| Asp | Ser | His | Cys | Gln | Glu | Arg | Pro | Ser | Glu | Tyr | Ile | Ala | Thr | Ile | 215 | 220 | 225 |
| Leu | Glu | Leu | Ser | Ala | Leu | Val | Glu | Lys | Arg | Ser | Gln | His | Ile | Leu | 230 | 235 | 240 |
| Gln | His | Met | Asp | Phe | Leu | Tyr | Tyr | Leu | Ser | His | Asp | Gly | Arg | Arg | 245 | 250 | 255 |
| Phe | His | Arg | Ala | Cys | Arg | Leu | Val | His | Asp | Phe | Thr | Asp | Ala | Val | 260 | 265 | 270 |
| Ile | Arg | Glu | Arg | Arg | Arg | Thr | Leu | Pro | Thr | Gln | Gly | Ile | Asp | Asp | 275 | 280 | 285 |
| Phe | Phe | Lys | Asp | Lys | Ala | Lys | Ser | Lys | Thr | Leu | Asp | Phe | Ile | Asp | 290 | 295 | 300 |
| Val | Leu | Leu | Leu | Ser | Lys | Asp | Glu | Asp | Gly | Lys | Ala | Leu | Ser | Asp | 305 | 310 | 315 |
| Glu | Asp | Ile | Arg | Ala | Glu | Ala | Asp | Thr | Phe | Met | Phe | Gly | Gly | His | 320 | 325 | 330 |
| Asp | Thr | Thr | Ala | Ser | Gly | Leu | Ser | Trp | Val | Leu | Tyr | Asn | Leu | Ala | 335 | 340 | 345 |
| Arg | His | Pro | Glu | Tyr | Gln | Glu | Arg | Cys | Arg | Gln | Glu | Val | Gln | Glu | 350 | 355 | 360 |
| Leu | Leu | Lys | Asp | Arg | Asp | Pro | Lys | Glu | Ile | Glu | Trp | Asp | Asp | Leu | 365 | 370 | 375 |
| Ala | Gln | Leu | Pro | Phe | Leu | Thr | Met | Cys | Val | Lys | Glu | Ser | Leu | Arg | 380 | 385 | 390 |
| Leu | His | Pro | Pro | Ala | Pro | Phe | Ile | Ser | Arg | Cys | Cys | Thr | Gln | Asp | 395 | 400 | 405 |
| Ile | Val | Leu | Pro | Asp | Gly | Arg | Val | Ile | Pro | Lys | Gly | Ile | Thr | Cys | 410 | 415 | 420 |
| Leu | Ile | Asp | Ile | Ile | Gly | Val | His | His | Asn | Pro | Thr | Val | Trp | Pro | 425 | 430 | 435 |
| Asp | Pro | Glu | Val | Tyr | Asp | Pro | Phe | Arg | Phe | Asp | Pro | Glu | Asn | Ser | 440 | 445 | 450 |

Lys Gly Arg Ser Pro Leu Ala Phe Ile Pro Phe Ser Ala Gly Pro
455 460 465
Arg Asn Cys Ile Gly Gln Ala Phe Ala Met Ala Glu Met Lys Val
470 475 480
Val Leu Ala Leu Met Leu Leu His Phe Arg Phe Leu Pro Asp His
485 490 495
Thr Glu Pro Arg Arg Lys Leu Glu Leu Ile Met Arg Ala Glu Gly
500 505 510
Gly Leu Trp Leu Arg Val Glu Pro Leu Asn Val Gly Leu Gln
515 520

<210> 265
<211> 584
<212> DNA
<213> Homo sapiens

<400> 265
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tcttcctctc cttgactcca gggaaatadc ctttcaactc tcagcacctc 150
atgaagacgc gcgcttaact ccggaggagc tagaaagagc ttcccttcta 200
cagatatgtc cagagatgct ggggtgcagaa agaggggata ttctcaggaa 250
agcagactca agtaccaca tttttaaccc aagaggaaat ttgagaaagt 300
ttcaggattt ctctggacaa gatcctaaca ttttactgag tcatcttttg 350
gccagaatct ggaaaccata caagaaacgt gagactcctg attgcttctg 400
gaaataactgt gtctgaagtg aaataagcat ctgttagtca gctcagaaac 450
acccatctta gaatatgaaa aataacacaa tgcttgattt gaaaacagtg 500
tgagagaaaaa ctaggcaaac tacaccctgt tcattgttac ctggaaaata 550
aatcctctat gttttgcaca aaaaaaaaaa aaaa 584

<210> 266
<211> 124
<212> PRT
<213> Homo sapiens

<400> 266
Met Tyr Lys Leu Ala Ser Cys Cys Leu Leu Phe Thr Gly Phe Leu
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Asn Pro Leu Leu Ser Leu Pro Leu Leu Asp Ser Arg Glu Ile Ser
20 25 30
Phe Gln Leu Ser Ala Pro His Glu Asp Ala Arg Leu Thr Pro Glu
35 40 45
Glu Leu Glu Arg Ala Ser Leu Leu Gln Ile Leu Pro Glu Met Leu
50 55 60

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ala | Glu | Arg | Gly | Asp | Ile | Leu | Arg | Lys | Ala | Asp | Ser | Ser | Thr |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Asn | Ile | Phe | Asn | Pro | Arg | Gly | Asn | Leu | Arg | Lys | Phe | Gln | Asp | Phe |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Gly | Gln | Asp | Pro | Asn | Ile | Leu | Leu | Ser | His | Leu | Leu | Ala | Arg |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Ile | Trp | Lys | Pro | Tyr | Lys | Lys | Arg | Glu | Thr | Pro | Asp | Cys | Phe | Trp |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Lys | Tyr | Cys | Val | | | | | | | | | | | |

<210> 267
 <211> 654
 <212> DNA
 <213> Homo sapiens

<400> 267
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 taaggacctg acagccacca ggcaccacct ccgccaggaa ctgcaggccc 150
 acctgtctgc aaccagctg aggccatgcc ctccccaggg accgtctgca 200
 gctcctgct cctcggcctg ctctggctgg acttggccat ggagggtcc 250
 agcttcctga gccctgaaca ccagagagtc cagcagagaa aggagtcgaa 300
 gaagccacca gccaagctgc agccccgagc tctagcaggc tggctccgcc 350
 cggaagatgg aggtcaagca gaaggggcag aggatgaact ggaagtccgg 400
 ttcaacgccc cttttgatgt tggaatcaag ctgtcagggg ttcagtacca 450
 gcagcacagc caggccctgg ggaagtttct tcaggacatc ctctgggaag 500
 aggccaaaga ggccccagcc gacaagtgat cgcccacaag cttactcac 550
 ctctctctaa gtttagaagc gctcatctgg cttttcgctt gcttctgcag 600
 caactccac gactgttgta caagctcagg aggcgaataa atgttcaaac 650
 tgta 654

<210> 268
 <211> 117
 <212> PRT
 <213> Homo sapiens

<400> 268
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 1 5 10 15
 Leu Trp Leu Asp Leu Ala Met Ala Gly Ser Ser Phe Leu Ser Pro
 20 25 30
 Glu His Gln Arg Val Gln Gln Arg Lys Glu Ser Lys Lys Pro Pro
 35 40 45

Ala Lys Leu Gln Pro Arg Ala Leu Ala Gly Trp Leu Arg Pro Glu
50 55 60
Asp Gly Gly Gln Ala Glu Gly Ala Glu Asp Glu Leu Glu Val Arg
65 70 75
Phe Asn Ala Pro Phe Asp Val Gly Ile Lys Leu Ser Gly Val Gln
80 85 90
Tyr Gln Gln His Ser Gln Ala Leu Gly Lys Phe Leu Gln Asp Ile
95 100 105
Leu Trp Glu Glu Ala Lys Glu Ala Pro Ala Asp Lys
110 115

<210> 269
<211> 1332
<212> DNA
<213> Homo sapiens

<400> 269
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agaatatgaa cacgtggctg ctgttcctcc ccctgttccc ggtgcagggtg 150
cagaccctga tagtcgtgat catcgggatg ctcgtgctcc tgctggactt 200
tcttggett ggtcacctgg gccagctgct catcttcac atctacctga 250
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gctgctcatc ttacacctct acttgagtat gtccctaacc ctgagcccc 350
cacgcctggg gccagagtct ttgtcccccg tgtgcgcatg tgttcagggt 400
cagcctctcc cagaagtga atcatggaca aaaagggcaa atcacaggaa 450
gaaattaaat ccatgaggac ccagcaggcc cagcaagaag ctgaactcac 500
gccgagacct gcaggagtgg tgccagggtg ttgaagtaac aagtttaaaa 550
tgttcagaga caatggaatg gaatctatta ggcaagaaca ggacattatg 600
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aaatatatta caggcaggtc acccactaac caaacaactg aagcgagagc 700
tgtggtcttg cttggtotca cagtgggcac agcggtaggc ggtcagtcac 750
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tgggccagct gcaaagcgtc ttccattctc tgggcagtgg tggccccgag 900
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tggagatacc aacacatcca cccaggaggt ggtacaatac aactgggaga 300
ctggggatga ccggttctcc ttccggagct tccggagtgg catgtggcta 350
tcctgtgagg aaactgtgga agaaccaggg gagaggtgcc gaagtttcat 400
tgaacttaca ccaccagcca agagaggtga gaaaggacta ctggaatttg 450
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aaatcctatg gttatccctg ggaacgcaga tcacctacat cggacttcaa 600
ttcatcagct tcctcctgct actaacagac ttgctactca ctgggaaccc 650
tgctgtggg ctcaaactga gcgcctttgc tgctgtttcc tctgtcctgt 700
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gcgactgtca acttgggtcc agaagactgg agaccacatg tttggaatta 800
tggctgggccc ttctacatgg cctgggtctc cttcacctgc tgcatggcgt 850
cggctgtcac caccttcaac acgtacacca ggatgggtgct ggagtccaag 900
tgcaagcata gtaagagctt caaggaaaac ccgaactgcc taccacatca 950
ccatcagtgt ttccctcggc ggctgtcaag tgcagcccc accgtgggtc 1000
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agtgttagga gttaagcggg tttggggagt aggcttgagc cctaccttac 1200
acgtctgctg attatcaaca tgtgtttaag ccaacatccg tctcttgagc 1250
atggttttta gaggtacga ataaggctat gaataagggt tatctttaag 1300
tcctaaggga ttcttgggtg ccaactgctc cttttcctct acagctccat 1350
cttgtttcac ccacccaca tctcacacat ccagaattcc cttctttact 1400
gatagtttct gtgccagggt ctgggctaaa ccatggagat aaaaagaaga 1450
gtaaaataca cttcccgacc ttaaggatct gaaa 1484

<210> 272
<211> 285
<212> PRT
<213> Homo sapiens

<400> 272
Met Ala Lys Met Glu Leu Ser Lys Ala Phe Ser Gly Gln Arg Thr
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Leu Leu Ser Ala Ile Leu Ser Met Leu Ser Leu Ser Phe Ser Thr
20 25 30
Thr Ser Leu Leu Ser Asn Tyr Trp Phe Val Gly Thr Gln Lys Val

| | 35 | | 40 | | 45 |
|---|-----|--|-----|--|-----|
| Pro Lys Pro Leu Cys Glu Lys Gly Leu Ala Ala Lys Cys Phe Asp | 50 | | 55 | | 60 |
| Met Pro Val Ser Leu Asp Gly Asp Thr Asn Thr Ser Thr Gln Glu | 65 | | 70 | | 75 |
| Val Val Gln Tyr Asn Trp Glu Thr Gly Asp Asp Arg Phe Ser Phe | 80 | | 85 | | 90 |
| Arg Ser Phe Arg Ser Gly Met Trp Leu Ser Cys Glu Glu Thr Val | 95 | | 100 | | 105 |
| Glu Glu Pro Gly Glu Arg Cys Arg Ser Phe Ile Glu Leu Thr Pro | 110 | | 115 | | 120 |
| Pro Ala Lys Arg Gly Glu Lys Gly Leu Leu Glu Phe Ala Thr Leu | 125 | | 130 | | 135 |
| Gln Gly Pro Cys His Pro Thr Leu Arg Phe Gly Gly Lys Arg Leu | 140 | | 145 | | 150 |
| Met Glu Lys Ala Ser Leu Pro Ser Pro Pro Leu Gly Leu Cys Gly | 155 | | 160 | | 165 |
| Lys Asn Pro Met Val Ile Pro Gly Asn Ala Asp His Leu His Arg | 170 | | 175 | | 180 |
| Thr Ser Ile His Gln Leu Pro Pro Ala Thr Asn Arg Leu Ala Thr | 185 | | 190 | | 195 |
| His Trp Glu Pro Cys Leu Trp Ala Gln Thr Glu Arg Leu Cys Cys | 200 | | 205 | | 210 |
| Cys Phe Leu Cys Pro Val Arg Ser Pro Gly Asp Gly Gly Pro His | 215 | | 220 | | 225 |
| Asp Val Phe Thr Ser Leu Pro Ser Asp Cys Gln Leu Gly Ser Arg | 230 | | 235 | | 240 |
| Arg Leu Glu Thr Thr Cys Leu Glu Leu Trp Leu Gly Leu Leu His | 245 | | 250 | | 255 |
| Gly Leu Ala Leu Leu His Leu Leu His Gly Val Gly Cys His His | 260 | | 265 | | 270 |
| Leu Gln His Val His Gln Asp Gly Ala Gly Val Gln Val Gln Ala | 275 | | 280 | | 285 |

<210> 273
 <211> 1158
 <212> DNA
 <213> Homo sapiens

<400> 273
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 ctcacttaag tctcaggcct gtcagcagct cctgtggaca ttgccatccc 150
 ctctggttagc cttcagagca aacaggacaa cctatgttat ggatgtttcc 200

accaaccagg gtagtggcat ggagcaccgt aaccatctgt gcttctgtga 250
 tctctatgac agagccactt ctccacctct gaaatgttcc ctgctctgaa 300
 atctggcatg agatggcaca ggtgaccacg cagaagccac cagaatcttg 350
 cctgccctat tcctcctccc aagtctgttc tcttattgtc aacctcagca 400
 caacaggctg ggcccaatgg cattacagag aaagcaatct gtgtggctag 450
 tgggcagatt accatgcaag ccccaggaga aatggaggag cttttagtagc 500
 acctccctgt cagccagtat taacatgtcc ccttccccct gccccgcct 550
 agattcagga cattcgcccc tgtgtgccac caaaccagga ctttccccctt 600
 ggcttggcat ccctggctct ctctgtgtac ccagcaagac gtctgttcca 650
 gggcagtgtg gcatctttca agctccgtta ctatggcgat ggccatgatg 700
 ttacaatccc acttgccctga ataatcaagt gggaagggga agcagaggga 750
 aatggggcca tgtgaatgca gctgctctgt tctccctacc ctgaggaaaa 800
 accaaagggga agcaacagga acttctgcaa ctgggttttta tcggaaagat 850
 catcctgcct gcagatgctg ttgaaggggc acaagaaatg tagctggaga 900
 agattgatga aagtgcaggt gtgtaaggaa atagaacagt ctgctgggag 950
 tcagacctgg aattctgatt ccaaactctt tattactttg ggaagtcaact 1000
 cagcctcccc gtagccatct ccagggtgac ggaaccagc gtattacctg 1050
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 tttctccaat tatgcccatt ccacaaaaac aataaaacaa aattctctaa 1150
 cactgaaa 1158

<210> 274
 <211> 86
 <212> PRT
 <213> Homo sapiens

<400> 274
 Met Trp Leu Pro Leu Gly Leu Leu Ser Leu Cys Leu Ser Pro Leu
 1 5 10 15
 Pro Ile Leu Ser Ser Pro Ser Leu Lys Ser Gln Ala Cys Gln Gln
 20 25 30
 Leu Leu Trp Thr Leu Pro Ser Pro Leu Val Ala Phe Arg Ala Asn
 35 40 45
 Arg Thr Thr Tyr Val Met Asp Val Ser Thr Asn Gln Gly Ser Gly
 50 55 60
 Met Glu His Arg Asn His Leu Cys Phe Cys Asp Leu Tyr Asp Arg
 65 70 75
 Ala Thr Ser Pro Pro Leu Lys Cys Ser Leu Leu
 80 85

<210> 275
<211> 2694
<212> DNA
<213> Homo sapiens

<400> 275
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gtcgtggagc caggagcgac gtcaccgcca tggcaggcat caaagctttg 100
attagtttgt cctttggagg agcaatcgga ctgatgtttt tgatgcttgg 150
atgtgccctt ccaatataca acaaatactg gccctctttt gttctatttt 200
tttacatcct ttcacctatt ccatactgca tagcaagaag attagtggat 250
gatacagatg ctatgagtaa cgcttgtaag gaacttgcca tctttottac 300
aacgggcatt gtcgtgtcag cttttggact ccctattgta tttgccagag 350
cacatctgat tgagtgggga gcttgtgcac ttgttctcac aggaaacaca 400
gtcatctttg caactatact aggctttttc ttggtctttg gaagcaatga 450
cgacttcagc tggcagcagt ggtgaaaaga aattactgaa ctattgtcaa 500
atggacttcc tgtcatttgt tggccattca cgcacacagg agatggggca 550
gttaatgctg aatggtatag caagcctctt gggggatatt taggtgctcc 600
cttctcactt ttattgtaag catactatctt tcacagagac ttgctgaagg 650
attaaaagga ttttctcttt tggaaaagct tgactgattt cacacttatt 700
tatagtatgc tttttgtggt gtccctgctga atttaaatat ttatgtgttt 750
ttcctgttag gttgattttt tttggaatca atatgcaatg ttaaactatt 800
ttttaatgta atcatttgca ttggttagga attcagaatt ccgccggctc 850
tattactggt caagtacatc ttttctotta aaattattta gcctccatta 900
ttacaaaaaa ttataaaaat aagttttcag tcagtcagga tgacatcact 950
cccaatgtta tgcagacata cagacggttg gcatacgtta tagactgtat 1000
actcagtgc aatatagctg catttatacc tcagaggggc caagtgttaa 1050
tgcccatgcc ctccgttaag ggttggttgg tttactggta gacagatgtt 1100
ttgtggattg aaaattattt tatggaattg ctacagagga gtgcttttct 1150
tctcaattgt tagaagaatt tatgttaaac tttaaggtaa ggggtgtaaaa 1200
acatttttga gataagggtt ttatttatgt ttattattgt tagagtgagt 1250
tgcaatgtgg gaagaaatga cattgaaatt ccagtttttg aatcctgttt 1300
ctattttataa gtgaaatttg tgatctccta tcaacctttc atgttttacc 1350
ctgttaaaaat ggacatacat ggaaccacta ctgatgaggg acagttgtat 1400
gtttgcatca tatatgccag aaaaccttcc tctgcttcct ccttttgact 1450

tatttggat gttgtatata ttacataaaa taacttttca aatatagttt 1500
aataacactt agaagtgttt acttacctgg aaaataattg ctatgccgta 1550
cattcagagt gccccctccc ctgcaaggcc ttgccatgat taacaagtaa 1600
cttgttagtc ttacagataa ttcatgcatt aacagtttaa gatttagacc 1650
atggtaatag tagttcttat tctctaaggt tatatcatat gtaattttaa 1700
agtattttta agacaagttt cctgtatacc tctgaactgt tttgattttg 1750
agttcatcat gatagatctg ctgtttcctt ataaaaggca tttgttgtgt 1800
gagttaatgc aaagtagcca agtccagcta tatagcagct tcagaaacat 1850
acctgaccaa aaaattccca gtaaccaggc atgatcaatt tatagtggtc 1900
gtttacatct aataattatc aggacttttt tcaggagtgg gttataaaaa 1950
cattcaagtt ggtctgacag tattttgtta aggatatttg tttgtatggt 2000
tattcagtat acttacataa aaattatttc gccatcagcc aaaactcagt 2050
aatcatgaca gctgtctgtt gttttatgaa gtttatttct caagaaaatg 2100
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<210> 276

<211> 131

<212> PRT

<213> Homo sapiens

<400> 276

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Gly | Ile | Lys | Ala | Leu | Ile | Ser | Leu | Ser | Phe | Gly | Gly | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Gly | Leu | Met | Phe | Leu | Met | Leu | Gly | Cys | Ala | Leu | Pro | Ile | Tyr |
| | | | 20 | | | | | | 25 | | | | | 30 |

Asn Lys Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser

| | | | | | |
|---|-----|--|-----|--|-----|
| | 35 | | 40 | | 45 |
| Pro Ile Pro Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp | 50 | | 55 | | 60 |
| Ala Met Ser Asn Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr | 65 | | 70 | | 75 |
| Gly Ile Val Val Ser Ala Phe Gly Leu Pro Ile Val Phe Ala Arg | 80 | | 85 | | 90 |
| Ala His Leu Ile Glu Trp Gly Ala Cys Ala Leu Val Leu Thr Gly | 95 | | 100 | | 105 |
| Asn Thr Val Ile Phe Ala Thr Ile Leu Gly Phe Phe Leu Val Phe | 110 | | 115 | | 120 |
| Gly Ser Asn Asp Asp Phe Ser Trp Gln Gln Trp | 125 | | 130 | | |

<210> 277
 <211> 4104
 <212> DNA
 <213> Homo sapiens

<400> 277
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 cacactgcct ggtggaggga aggagcccgg ggcctctctg ccgctccccg 150
 cgcgcgcgtc cgcacctccc caccgcccgc cgcccgccgc ccgccgccg 200
 caaagcatga gtgagccgcg tctctgcagc tgcccggggc gcgaatggca 250
 ggctgtttcc gcgagtaaa aggtggcgcc ggtcagtggc cgtttccaat 300
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 ttggagtttt tccccccac aacgtcacag tccgaactgc agagggaaag 400
 gaaggcggca ggaaggcgaa gctcgggctc cggcacgtag ttgggaaact 450
 tgccgggtcct agaagtcgcc tccccgcctt gccggccgcc cttgcagccc 500
 cgagccgagc agcaaagtga gacattgtgc gctgccaga tccgccggcc 550
 gcggaccggg gctgcctcgg aaacacagag gggctcttct tcgccctgca 600
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 ctggaaaagg atttctgacc gagcgcttcc aatggacatt ctccagtctc 700
 tctggaaaga ttctcgctaa tggatttcct gctgctcggc ctctgtctat 750
 actggctgct gaggaggccc tcgggggtgg tcttgtgtct gctggggggc 800
 tgctttcaga tgctgccgcg cgccccagc ggggtgccgc agctgtgccg 850
 gtgcgagggg cggtgctgt actgcgaggc gctcaacctc accgaggcgc 900
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ctatctggat cacaatcaca tctgctccgt gcagggggac gcctttcaga 1050
aactgcgccg agttaaggaa ctacgctga gttccaacca gatcacccaa 1100
ctgccaaca ccaccttccg gcccatgccc aacctgcgca gcgtggacct 1150
ctcgtacaac aagctgcagg cgctcgccc cgacctcttc cacgggctgc 1200
ggaagctcac cacgctgcat atgcgggcca acgccatcca gtttgtgccc 1250
gtgcgcatct tccaggactg ccgcagcctc aagtttctcg acatcggata 1300
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cgcggacggc ggggagggc agcacgacgg cacattcgag cctgccaccg 1950
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<210> 278
 <211> 522
 <212> PRT
 <213> Homo sapiens

<400> 278

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Asp | Phe | Leu | Leu | Leu | Gly | Leu | Cys | Leu | Tyr | Trp | Leu | Leu | Arg | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Arg | Pro | Ser | Gly | Val | Val | Leu | Cys | Leu | Leu | Gly | Ala | Cys | Phe | Gln | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Met | Leu | Pro | Ala | Ala | Pro | Ser | Gly | Cys | Pro | Gln | Leu | Cys | Arg | Cys | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Glu | Gly | Arg | Leu | Leu | Tyr | Cys | Glu | Ala | Leu | Asn | Leu | Thr | Glu | Ala | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Pro | His | Asn | Leu | Ser | Gly | Leu | Leu | Gly | Leu | Ser | Leu | Arg | Tyr | Asn | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Ser | Leu | Ser | Glu | Leu | Arg | Ala | Gly | Gln | Phe | Thr | Gly | Leu | Met | Gln | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Leu | Thr | Trp | Leu | Tyr | Leu | Asp | His | Asn | His | Ile | Cys | Ser | Val | Gln | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Gly | Asp | Ala | Phe | Gln | Lys | Leu | Arg | Arg | Val | Lys | Glu | Leu | Thr | Leu | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Ser | Ser | Asn | Gln | Ile | Thr | Gln | Leu | Pro | Asn | Thr | Thr | Phe | Arg | Pro | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Met | Pro | Asn | Leu | Arg | Ser | Val | Asp | Leu | Ser | Tyr | Asn | Lys | Leu | Gln | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Ala | Leu | Ala | Pro | Asp | Leu | Phe | His | Gly | Leu | Arg | Lys | Leu | Thr | Thr | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Leu | His | Met | Arg | Ala | Asn | Ala | Ile | Gln | Phe | Val | Pro | Val | Arg | Ile | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Phe | Gln | Asp | Cys | Arg | Ser | Leu | Lys | Phe | Leu | Asp | Ile | Gly | Tyr | Asn | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Gln | Leu | Lys | Ser | Leu | Ala | Arg | Asn | Ser | Phe | Ala | Gly | Leu | Phe | Lys | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Leu | Thr | Glu | Leu | His | Leu | Glu | His | Asn | Asp | Leu | Val | Lys | Val | Asn | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Phe | Ala | His | Phe | Pro | Arg | Leu | Ile | Ser | Leu | His | Ser | Leu | Cys | Leu | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Arg | Arg | Asn | Lys | Val | Ala | Ile | Val | Val | Ser | Ser | Leu | Asp | Trp | Val | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Trp | Asn | Leu | Glu | Lys | Met | Asp | Leu | Ser | Gly | Asn | Glu | Ile | Glu | Tyr | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Met | Glu | Pro | His | Val | Phe | Glu | Thr | Val | Pro | His | Leu | Gln | Ser | Leu | |
| | | | | 275 | | | | | 280 | | | | | 285 | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Asp | Ser | Asn | Arg | Leu | Thr | Tyr | Ile | Glu | Pro | Arg | Ile | Leu | 290 | 295 | 300 |
| Asn | Ser | Trp | Lys | Ser | Leu | Thr | Ser | Ile | Thr | Leu | Ala | Gly | Asn | Leu | 305 | 310 | 315 |
| Trp | Asp | Cys | Gly | Arg | Asn | Val | Cys | Ala | Leu | Ala | Ser | Trp | Leu | Ser | 320 | 325 | 330 |
| Asn | Phe | Gln | Gly | Arg | Tyr | Asp | Gly | Asn | Leu | Gln | Cys | Ala | Ser | Pro | 335 | 340 | 345 |
| Glu | Tyr | Ala | Gln | Gly | Glu | Asp | Val | Leu | Asp | Ala | Val | Tyr | Ala | Phe | 350 | 355 | 360 |
| His | Leu | Cys | Glu | Asp | Gly | Ala | Glu | Pro | Thr | Ser | Gly | His | Leu | Leu | 365 | 370 | 375 |
| Ser | Ala | Val | Thr | Asn | Arg | Ser | Asp | Leu | Gly | Pro | Pro | Ala | Ser | Ser | 380 | 385 | 390 |
| Ala | Thr | Thr | Leu | Ala | Asp | Gly | Gly | Glu | Gly | Gln | His | Asp | Gly | Thr | 395 | 400 | 405 |
| Phe | Glu | Pro | Ala | Thr | Val | Ala | Leu | Pro | Gly | Gly | Glu | His | Ala | Glu | 410 | 415 | 420 |
| Asn | Ala | Val | Gln | Ile | His | Lys | Val | Val | Thr | Gly | Thr | Met | Ala | Leu | 425 | 430 | 435 |
| Ile | Phe | Ser | Phe | Leu | Ile | Val | Val | Leu | Val | Leu | Tyr | Val | Ser | Trp | 440 | 445 | 450 |
| Lys | Cys | Phe | Pro | Ala | Ser | Leu | Arg | Gln | Leu | Arg | Gln | Cys | Phe | Val | 455 | 460 | 465 |
| Thr | Gln | Arg | Arg | Lys | Gln | Lys | Gln | Lys | Gln | Thr | Met | His | Gln | Met | 470 | 475 | 480 |
| Ala | Ala | Met | Ser | Ala | Gln | Glu | Tyr | Tyr | Val | Asp | Tyr | Lys | Pro | Asn | 485 | 490 | 495 |
| His | Ile | Glu | Gly | Ala | Leu | Val | Ile | Ile | Asn | Glu | Tyr | Gly | Ser | Cys | 500 | 505 | 510 |
| Thr | Cys | His | Gln | Gln | Pro | Ala | Arg | Glu | Cys | Glu | Val | | | | 515 | 520 | |

<210> 279

<211> 46

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 279

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<210> 280

<211> 709

<212> DNA

<213> Homo sapiens

<400> 280

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ctgcagctct gcgcactgac ccaggcggtc tccaaactct ggggtcccaa 100
cacggacttc gacgtcgcag ccaactggag ccagaaccgg accccgtgcg 150
ccggcggcgc cgttgagttc ccggcggaca agatgggtgc agtcctggtg 200
caagaaggtc acgccgtctc agacatgctc ctgccgtggt atggggaact 250
cgtcctgggt tcaggagccg gattcggcgt ctcagacgtg ggctcgcacc 300
tggactgtgg cgcggggcgaa cctgccgtct tccgcgactc tgaccgcttc 350
tcctggcatg acccgcacct gtggcgtctt ggggacgagg cacctggcct 400
cttcttcgtg gacgccgagc gcgtgccctg ccgccacgac gacgtcttct 450
ttccgcctag tgccctcttc cgcgtggggc tcggccctgg cgctagcccc 500
gtgcgtgtcc gcagcatctc ggctctgggc cggacgttca cgcgcgacga 550
ggacctgggt gttttcctgg cgtcccgcgc gggccgccta cgcttccacg 600
ggccggggcgc gctgagcgtg ggccccgagg actgcgcgga cccgtcgggc 650
tgcgctctgcg gcaacgcgga ggcgagccg tggatctgcg cggccctgct 700
ccagcccct 709

<210> 281

<211> 229

<212> PRT

<213> Homo sapiens

<400> 281

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Val | Leu | Gly | Arg | Val | Leu | Leu | Trp | Leu | Gln | Leu | Cys | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Leu | Thr | Gln | Ala | Val | Ser | Lys | Leu | Trp | Val | Pro | Asn | Thr | Asp | Phe |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Asp | Val | Ala | Ala | Asn | Trp | Ser | Gln | Asn | Arg | Thr | Pro | Cys | Ala | Gly |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Gly | Ala | Val | Glu | Phe | Pro | Ala | Asp | Lys | Met | Val | Ser | Val | Leu | Val |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gln | Glu | Gly | His | Ala | Val | Ser | Asp | Met | Leu | Leu | Pro | Leu | Asp | Gly |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Glu | Leu | Val | Leu | Ala | Ser | Gly | Ala | Gly | Phe | Gly | Val | Ser | Asp | Val |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Gly | Ser | His | Leu | Asp | Cys | Gly | Ala | Gly | Glu | Pro | Ala | Val | Phe | Arg |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Asp | Ser | Asp | Arg | Phe | Ser | Trp | His | Asp | Pro | His | Leu | Trp | Arg | Ser |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Gly | Asp | Glu | Ala | Pro | Gly | Leu | Phe | Phe | Val | Asp | Ala | Glu | Arg | Val |
| | | | | 125 | | | | | 130 | | | | | 135 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Cys | Arg | His | Asp | Asp | Val | Phe | Phe | Pro | Pro | Ser | Ala | Ser | Phe |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Arg | Val | Gly | Leu | Gly | Pro | Gly | Ala | Ser | Pro | Val | Arg | Val | Arg | Ser |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Ile | Ser | Ala | Leu | Gly | Arg | Thr | Phe | Thr | Arg | Asp | Glu | Asp | Leu | Ala |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Val | Phe | Leu | Ala | Ser | Arg | Ala | Gly | Arg | Leu | Arg | Phe | His | Gly | Pro |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Gly | Ala | Leu | Ser | Val | Gly | Pro | Glu | Asp | Cys | Ala | Asp | Pro | Ser | Gly |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Cys | Val | Cys | Gly | Asn | Ala | Glu | Ala | Gln | Pro | Trp | Ile | Cys | Ala | Ala |
| | | | | 215 | | | | | 220 | | | | | 225 |

Leu Leu Gln Pro

<210> 282
 <211> 644
 <212> DNA
 <213> Homo sapiens

<400> 282
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 cttgcactta tcttctgcat tttgcagtct ttggcattga cgtggtacag 200
 cctttccttc ataccatttg caagggatgc tgtgaagaag tgttttgccg 250
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 tggacagaag ctggtggaca gttttgtaac tatcttcgaa acctctgtct 350
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 catttgaggg ttacttttgg aagcaacaat acattctcga acctgaatgt 450
 cagtagcaca ggatgagaag tgggttctgt atcttgtgga gtggaatctt 500
 cctcatgtac ctgtttcctc tctggatggt gtccactga attcccatga 550
 atacaaacct attcagcaac agcaaaaaaa aaaaaaaaaa aaaaaaaaaa 600
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 644

<210> 283
 <211> 77
 <212> PRT
 <213> Homo sapiens

<400> 283
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 1 5 10 15
 Leu Ile Ala Thr Ile Met Val Leu Leu Cys Phe Ala Leu Thr Leu

| | | | | | |
|---|----|--|----|--|----|
| | 20 | | 25 | | 30 |
| Cys Ser Ala Phe Trp Trp His Asn Lys Gly Leu Ala Leu Ile Phe | | | | | |
| | 35 | | 40 | | 45 |
| Cys Ile Leu Gln Ser Leu Ala Leu Thr Trp Tyr Ser Leu Ser Phe | | | | | |
| | 50 | | 55 | | 60 |
| Ile Pro Phe Ala Arg Asp Ala Val Lys Lys Cys Phe Ala Val Cys | | | | | |
| | 65 | | 70 | | 75 |
| Leu Ala | | | | | |

<210> 284
 <211> 2623
 <212> DNA
 <213> Homo sapiens

<400> 284
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 ctcccggttg tccaaactaa tacggactga acggatcgct gcgaggggtgg 150
 gagagaaaat tagggggaga aaggacagag agagcaacta ccatccatag 200
 ccagatagat tatcttacac tgaactgac aagtactttg aaaatgactt 250
 cgaaatttat cttggtgtcc ttcatacttg ctgcactgag tctttcaacc 300
 accttttctc tccaaactaga ccagcaaaag gttctactag tttcttttga 350
 tggattccgt tgggattact tatataaagt tccaacgccc cattttcatt 400
 atattatgaa atatggtgtt cacgtgaagc aagttactaa tgtttttatt 450
 acaaaaacct accctaacca ttatactttg gtaactggcc tctttgcaga 500
 gaatcatggg attgttgcaa atgatatgtt tgatcctatt cgaacaaaat 550
 ctttctcctt ggatcacatg aatatttatg attccaagtt ttgggaagaa 600
 gcgacaccaa tatggatcac aaaccagagg gcaggacata ctagtgggtgc 650
 agccatgttg cccggaacag atgtaaaaat acataagcgc tttcctactc 700
 attacatgcc ttacaatgag tcagtttcat ttgaagatag agttgccaaa 750
 attgttgaat ggtttacgtc aaaagagccc ataaatcttg gtcttctcta 800
 ttgggaagac cctgatgaca tgggccacca tttgggacct gacagtccgc 850
 tcatggggcc tgtcatttca gatattgaca agaagttagg atatctcata 900
 caaatgctga aaaaggcaaa gttgtggaac actctgaacc taatcatcac 950
 aagtgatcat ggaatgacgc agtgctctga ggaaagggtta atagaacttg 1000
 accagtacct ggataaagac cactataccc tgattgatca atctocagta 1050
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aactcacgct catcctaatac ttactgttta caaaaaagaa gacgttccag 1150
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aggcaaccac ggttacgata atgcgttagc agatatgcat ccaatatttt 1300
tagcccatgg tcttgccttc agaaagaatt tctcaaaaga agccatgaac 1350
tccacagatt tgtaccact actatgccac ctctcaata tcaactgccat 1400
gccacacaat ggatcattct ggaatgtcca ggatctgctc aattcagcaa 1450
tgccaagggg ggtcccttat acacagagta ctatactcct ccctggtagt 1500
gttaaaccag cagaatatga ccaagagggg tcataccctt atttcatagg 1550
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agcatttaat tcacagtcaa atacctgcct tacaagatat gcatgctgaa 1650
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ttaggtatac acacacacac acacacacac atacacacac acggaccaa 1850
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gataatgtat atatttagca actttgcact atgtaaagta ccttatatat 2000
tgcactttaa atttctctcc tgatgggtac ttttaattga aatgcacttt 2050
atggacagtt atgtcttata acttgattga aaatgacaac tttttgcacc 2100
catgtcacag aatacttgtt acgcattgtt caaactgaag gaaatttcta 2150
ataatcccga ataataaaca tagaaatcta tctccataaa ttgagagaag 2200
aagaaggtga taagtgttga aaattaaatg tgataacctt tgaaccttga 2250
attttggaga tgtattccca acagcagaat gcaactgtgg gcatttcttg 2300
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| Ile Ile Ala Val | Ala Asp Glu Gly Trp | His Ile Leu Gln Asn | Lys |
| | 320 | 325 | 330 |
| Ser Asp Asp Phe | Leu Leu Gly Asn His | Gly Tyr Asp Asn Ala | Leu |
| | 335 | 340 | 345 |
| Ala Asp Met His | Pro Ile Phe Leu Ala | His Gly Pro Ala Phe | Arg |
| | 350 | 355 | 360 |
| Lys Asn Phe Ser | Lys Glu Ala Met Asn | Ser Thr Asp Leu Tyr | Pro |
| | 365 | 370 | 375 |
| Leu Leu Cys His | Leu Leu Asn Ile Thr | Ala Met Pro His Asn | Gly |
| | 380 | 385 | 390 |
| Ser Phe Trp Asn | Val Gln Asp Leu Leu | Asn Ser Ala Met Pro | Arg |
| | 395 | 400 | 405 |
| Val Val Pro Tyr | Thr Gln Ser Thr Ile | Leu Leu Pro Gly Ser | Val |
| | 410 | 415 | 420 |
| Lys Pro Ala Glu | Tyr Asp Gln Glu Gly | Ser Tyr Pro Tyr Phe | Ile |
| | 425 | 430 | 435 |
| Gly Val Ser Leu | Gly Ser Ile Ile Val | Ile Val Phe Phe Val | Ile |
| | 440 | 445 | 450 |
| Phe Ile Lys His | Leu Ile His Ser Gln | Ile Pro Ala Leu Gln | Asp |
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| Met His Ala Glu | Ile Ala Gln Pro Leu | Leu Gln Ala | |
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<211> 255

<212> PRT

<213> Homo sapiens

<400> 287

| | | | | | | | | | | | | | | | | | | |
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| Met | Ala | Thr | Trp | Asp | Glu | Lys | Ala | Val | Thr | Arg | Arg | Ala | Lys | Val | 1 | 5 | 10 | 15 |
| Ala | Pro | Ala | Glu | Arg | Met | Ser | Lys | Phe | Leu | Arg | His | Phe | Thr | Val | 20 | 25 | 30 | |
| Val | Gly | Asp | Asp | Tyr | His | Ala | Trp | Asn | Ile | Asn | Tyr | Lys | Lys | Trp | 35 | 40 | 45 | |
| Glu | Asn | Glu | Glu | Glu | Glu | Glu | Glu | Glu | Glu | Gln | Pro | Pro | Pro | Thr | 50 | 55 | 60 | |
| Pro | Val | Ser | Gly | Glu | Glu | Gly | Arg | Ala | Ala | Ala | Pro | Asp | Val | Ala | 65 | 70 | 75 | |
| Pro | Ala | Pro | Gly | Pro | Ala | Pro | Arg | Ala | Pro | Leu | Asp | Phe | Arg | Gly | 80 | 85 | 90 | |
| Met | Leu | Arg | Lys | Leu | Phe | Ser | Ser | His | Arg | Phe | Gln | Val | Ile | Ile | 95 | 100 | 105 | |
| Ile | Cys | Leu | Val | Val | Leu | Asp | Ala | Leu | Leu | Val | Leu | Ala | Glu | Leu | 110 | 115 | 120 | |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Ala | Met | Val | Phe | His | Tyr | Met | Ser | Ile | Thr | Ile | Leu | Val | Phe | Phe |
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| Met | Met | Glu | Ile | Ile | Phe | Lys | Leu | Phe | Val | Phe | Arg | Leu | Ser | Ser |
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| Phe | Thr | Thr | Ser | Leu | Arg | Ser | Trp | Met | Pro | Val | Val | Val | Val | Val |
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| Ser | Phe | Ile | Leu | Asp | Ile | Val | Leu | Leu | Phe | Gln | Glu | His | Gln | Phe |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Glu | Ala | Leu | Gly | Leu | Leu | Ile | Leu | Leu | Arg | Leu | Trp | Arg | Val | Ala |
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 Ser Thr Tyr Arg Gln Trp Lys Gln Lys Ile Val Gln Ala Gly Asp
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 Lys Asp Leu Asp Gly Gln Leu Asp Phe Glu Glu Phe Val His Tyr
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 Leu Gln Asp His Glu Lys Lys Leu Arg Leu Val Phe Lys Ile Leu
 80 85 90

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Asp | Lys | Lys | Asn | Asp | Gly | Arg | Ile | Asp | Ala | Gln | Glu | Ile | Met | Gln | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Ser | Leu | Arg | Asp | Leu | Gly | Val | Lys | Ile | Ser | Glu | Gln | Gln | Ala | Glu | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Lys | Ile | Leu | Lys | Ser | Met | Asp | Lys | Asn | Gly | Thr | Met | Thr | Ile | Asp | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Trp | Asn | Glu | Trp | Arg | Asp | Tyr | His | Leu | Leu | His | Pro | Val | Glu | Asn | |
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| Ile | Pro | Glu | Ile | Ile | Leu | Tyr | Trp | Lys | His | Ser | Thr | Ile | Phe | Asp | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Val | Gly | Glu | Asn | Leu | Thr | Val | Pro | Asp | Glu | Phe | Thr | Val | Glu | Glu | |
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| Arg | Gln | Thr | Gly | Met | Trp | Trp | Arg | His | Leu | Val | Ala | Gly | Gly | Gly | |
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| Ala | Gly | Ala | Val | Ser | Arg | Thr | Cys | Thr | Ala | Pro | Leu | Asp | Arg | Leu | |
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| Lys | Val | Leu | Met | Gln | Val | His | Ala | Ser | Arg | Ser | Asn | Asn | Met | Gly | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Ile | Val | Gly | Gly | Phe | Thr | Gln | Met | Ile | Arg | Glu | Gly | Gly | Ala | Arg | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Ser | Leu | Trp | Arg | Gly | Asn | Gly | Ile | Asn | Val | Leu | Lys | Ile | Ala | Pro | |
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| Glu | Ser | Ala | Ile | Lys | Phe | Met | Ala | Tyr | Glu | Gln | Ile | Lys | Arg | Leu | |
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| Val | Gly | Ser | Asp | Gln | Glu | Thr | Leu | Arg | Ile | His | Glu | Arg | Leu | Val | |
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| Ala | Gly | Ser | Leu | Ala | Gly | Ala | Ile | Ala | Gln | Ser | Ser | Ile | Tyr | Pro | |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Met | Glu | Val | Leu | Lys | Thr | Arg | Met | Ala | Leu | Arg | Lys | Thr | Gly | Gln | |
| | | | | 305 | | | | | 310 | | | | | 315 | |
| Tyr | Ser | Gly | Met | Leu | Asp | Cys | Ala | Arg | Arg | Ile | Leu | Ala | Arg | Glu | |
| | | | | 320 | | | | | 325 | | | | | 330 | |
| Gly | Val | Ala | Ala | Phe | Tyr | Lys | Gly | Tyr | Val | Pro | Asn | Met | Leu | Gly | |
| | | | | 335 | | | | | 340 | | | | | 345 | |
| Ile | Ile | Pro | Tyr | Ala | Gly | Ile | Asp | Leu | Ala | Val | Tyr | Glu | Thr | Leu | |
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| Lys | Asn | Ala | Trp | Leu | Gln | His | Tyr | Ala | Val | Asn | Ser | Ala | Asp | Pro | |
| | | | | 365 | | | | | 370 | | | | | 375 | |
| Gly | Val | Phe | Val | Leu | Leu | Ala | Cys | Gly | Thr | Met | Ser | Ser | Thr | Cys | |
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| Gly | Gln | Leu | Ala | Ser | Tyr | Pro | Leu | Ala | Leu | Val | Arg | Thr | Arg | Met | |
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| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Ser | Leu | Phe | Lys | His | Ile | Leu | Arg | Thr | Glu | Gly | Ala | Phe | Gly | Leu |
| | | | | 425 | | | | | 430 | | | | | 435 |
| Tyr | Arg | Gly | Leu | Ala | Pro | Asn | Phe | Met | Lys | Val | Ile | Pro | Ala | Val |
| | | | | 440 | | | | | 445 | | | | | 450 |
| Ser | Ile | Ser | Tyr | Val | Val | Tyr | Glu | Asn | Leu | Lys | Ile | Thr | Leu | Gly |
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 <212> PRT
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 Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile Thr Ser
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| | | | | | |
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| 185 | 190 | 195 | | | |
| Asn Thr Ser Phe Glu Leu Asn Ser Glu | Asn Val Thr Met Lys | Val | | | |
| 200 | 205 | 210 | | | |
| Val Ser Val Leu Tyr Asn Val Thr Ile | Asn Asn Thr Tyr Ser | Cys | | | |
| 215 | 220 | 225 | | | |
| Met Ile Glu Asn Asp Ile Ala Lys Ala | Thr Gly Asp Ile Lys | Val | | | |
| 230 | 235 | 240 | | | |
| Thr Glu Ser Glu Ile Lys Arg Arg Ser | His Leu Gln Leu Leu | Asn | | | |
| 245 | 250 | 255 | | | |
| Ser Lys Ala Ser Leu Cys Val Ser Ser | Phe Phe Ala Ile Ser | Trp | | | |
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| Ala Leu Leu Pro Leu Ser Pro Tyr Leu | Met Leu Lys | | | | |
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 <211> 180
 <212> PRT
 <213> Homo sapiens

<400> 293
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 Gly Leu Gln Arg Val His Glu Pro Thr Trp Ala Gln Gln Leu Leu
 35 40 45
 Gln Glu Met Lys Thr Leu Phe Leu Asn Thr Glu Tyr Leu Met Pro
 50 55 60
 Phe Leu Leu Asn Gln Cys Gly Ser Leu Leu Tyr Tyr Leu Thr Leu
 65 70 75
 Ala Ser Thr Asp Leu Thr Leu Ala Val Pro Ile Cys Asn Ser Leu
 80 85 90
 Ala Ile Ile Phe Thr Leu Ile Val Gly Lys Ala Leu Gly Glu Asp
 95 100 105
 Ile Gly Gly Lys Arg Lys Leu Asp Tyr Cys Glu Cys Gly Thr Gln
 110 115 120
 Leu Cys Gly Ser Arg His Thr Cys Val Ser Ser Phe Pro Glu Pro
 125 130 135
 Ile Ser Pro Glu Trp Val Arg Thr Arg Pro Phe Pro Ile Leu Pro
 140 145 150

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Pro | Leu | Gln | Leu | Phe | Cys | Phe | Leu | Val | Ala | Ile | Arg | Val | Pro |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Phe | Pro | Trp | Thr | Val | Trp | Arg | Lys | Thr | Glu | Ala | Gly | Val | Trp | Asp |
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<210> 295
 <211> 237
 <212> PRT

<213> Homo sapiens

<400> 295

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Ser Cys Val Asn Ser Ile Ala Ser Glu Cys Pro Ser His Ala Asn
35 40 45
Thr Ser Cys Ile Ser Ser Ser Ala Ser Ser Ser Leu Glu Thr Pro
50 55 60
Val Arg Leu Tyr Gln Asn Met Phe Cys Ser Ala Glu Asn Cys Ser
65 70 75
Glu Glu Thr His Ile Thr Ala Phe Thr Val His Val Ser Ala Glu
80 85 90
Glu His Phe His Phe Val Ser Gln Cys Cys Gln Gly Lys Glu Cys
95 100 105
Ser Asn Thr Ser Asp Ala Leu Asp Pro Pro Leu Lys Asn Val Ser
110 115 120
Ser Asn Ala Glu Cys Pro Ala Cys Tyr Glu Ser Asn Gly Thr Ser
125 130 135
Cys Arg Gly Lys Pro Trp Lys Cys Tyr Glu Glu Glu Gln Cys Val
140 145 150
Phe Leu Val Ala Glu Leu Lys Asn Asp Ile Glu Ser Lys Ser Leu
155 160 165
Val Leu Lys Gly Cys Ser Asn Val Ser Asn Ala Thr Cys Gln Phe
170 175 180
Leu Ser Gly Glu Asn Lys Thr Leu Gly Gly Val Ile Phe Arg Lys
185 190 195
Phe Glu Cys Ala Asn Val Asn Ser Leu Thr Pro Thr Ser Ala Pro
200 205 210
Thr Thr Ser His Asn Val Gly Ser Lys Ala Ser Leu Tyr Leu Leu
215 220 225
Ala Leu Ala Ser Leu Leu Leu Arg Gly Leu Leu Pro
230 235

<210> 296

<211> 1245

<212> DNA

<213> Homo sapiens

<400> 296

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<210> 297

<211> 341

<212> PRT

<213> Homo sapiens

<400> 297

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Leu Gly Pro Arg Ala Ala Gly Ala Gln Gly Leu Thr Gln Thr Pro
 20 25 30

Thr Glu Met Gln Arg Val Ser Leu Arg Phe Gly Gly Pro Met Thr
 35 40 45

Arg Ser Tyr Arg Ser Thr Ala Arg Thr Gly Leu Pro Arg Lys Thr
 50 55 60

Arg Ile Ile Leu Glu Asp Glu Asn Asp Ala Met Ala Asp Ala Asp

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<210> 299

<211> 320

<212> PRT

<213> Homo sapiens

<400> 299

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Gly | Leu | Ala | Ala | Arg | Leu | Val | Leu | Leu | Ala | Gly | Ala | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Ala | Leu | Ala | Ser | Gly | Ser | Gln | Gly | Asp | Arg | Glu | Pro | Val | Tyr | Arg |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Asp | Cys | Val | Leu | Gln | Cys | Glu | Glu | Gln | Asn | Cys | Ser | Gly | Gly | Ala |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Leu | Asn | His | Phe | Arg | Ser | Arg | Gln | Pro | Ile | Tyr | Met | Ser | Leu | Ala |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gly | Trp | Thr | Cys | Arg | Asp | Asp | Cys | Lys | Tyr | Glu | Cys | Met | Trp | Val |
| | | | | 65 | | | | | 70 | | | | | 75 |

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<210> 301

<211> 461
 <212> PRT
 <213> Homo sapiens

<400> 301

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Ala | Pro | Gln | Ser | Leu | Pro | Ser | Ser | Arg | Met | Ala | Pro | Leu | Gly | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Leu | Leu | Gly | Leu | Leu | Met | Ala | Ala | Cys | Phe | Thr | Phe | Cys | Leu | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Ser | His | Gln | Asn | Leu | Lys | Glu | Phe | Ala | Leu | Thr | Asn | Pro | Glu | Lys | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Ser | Ser | Thr | Lys | Glu | Thr | Glu | Arg | Lys | Glu | Thr | Lys | Ala | Glu | Glu | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Glu | Leu | Asp | Ala | Glu | Val | Leu | Glu | Val | Phe | His | Pro | Thr | His | Glu | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Trp | Gln | Ala | Leu | Gln | Pro | Gly | Gln | Ala | Val | Pro | Ala | Gly | Ser | His | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Val | Arg | Leu | Asn | Leu | Gln | Thr | Gly | Glu | Arg | Glu | Ala | Lys | Leu | Gln | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Tyr | Glu | Asp | Lys | Phe | Arg | Asn | Asn | Leu | Lys | Gly | Lys | Arg | Leu | Asp | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Ile | Asn | Thr | Asn | Thr | Tyr | Thr | Ser | Gln | Asp | Leu | Lys | Ser | Ala | Leu | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Ala | Lys | Phe | Lys | Glu | Gly | Ala | Glu | Met | Glu | Ser | Ser | Lys | Glu | Asp | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Lys | Ala | Arg | Gln | Ala | Glu | Val | Lys | Arg | Leu | Phe | Arg | Pro | Ile | Glu | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Glu | Leu | Lys | Lys | Asp | Phe | Asp | Glu | Leu | Asn | Val | Val | Ile | Glu | Thr | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Asp | Met | Gln | Ile | Met | Val | Arg | Leu | Ile | Asn | Lys | Phe | Asn | Ser | Ser | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Ser | Ser | Ser | Leu | Glu | Glu | Lys | Ile | Ala | Ala | Leu | Phe | Asp | Leu | Glu | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Tyr | Tyr | Val | His | Gln | Met | Asp | Asn | Ala | Gln | Asp | Leu | Leu | Ser | Phe | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Gly | Gly | Leu | Gln | Val | Val | Ile | Asn | Gly | Leu | Asn | Ser | Thr | Glu | Pro | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Leu | Val | Lys | Glu | Tyr | Ala | Ala | Phe | Val | Leu | Gly | Ala | Ala | Phe | Ser | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Asn | Pro | Lys | Val | Gln | Val | Glu | Ala | Ile | Glu | Gly | Gly | Ala | Leu | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Gln | Lys | Leu | Leu | Val | Ile | Leu | Ala | Thr | Glu | Gln | Pro | Leu | Thr | Ala | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Lys | Lys | Lys | Val | Leu | Phe | Ala | Leu | Cys | Ser | Leu | Leu | Arg | His | Phe | |

| | | |
|-------------------------------------|-------------------------|-----|
| 290 | 295 | 300 |
| Pro Tyr Ala Gln Arg Gln Phe Leu Lys | Leu Gly Gly Leu Gln Val | |
| 305 | 310 | 315 |
| Leu Arg Thr Leu Val Gln Glu Lys Gly | Thr Glu Val Leu Ala Val | |
| 320 | 325 | 330 |
| Arg Val Val Thr Leu Leu Tyr Asp Leu | Val Thr Glu Lys Met Phe | |
| 335 | 340 | 345 |
| Ala Glu Glu Glu Ala Glu Leu Thr Gln | Glu Met Ser Pro Glu Lys | |
| 350 | 355 | 360 |
| Leu Gln Gln Tyr Arg Gln Val His Leu | Leu Pro Gly Leu Trp Glu | |
| 365 | 370 | 375 |
| Gln Gly Trp Cys Glu Ile Thr Ala His | Leu Leu Ala Leu Pro Glu | |
| 380 | 385 | 390 |
| His Asp Ala Arg Glu Lys Val Leu Gln | Thr Leu Gly Val Leu Leu | |
| 395 | 400 | 405 |
| Thr Thr Cys Arg Asp Arg Tyr Arg Gln | Asp Pro Gln Leu Gly Arg | |
| 410 | 415 | 420 |
| Thr Leu Ala Ser Leu Gln Ala Glu Tyr | Gln Val Leu Ala Ser Leu | |
| 425 | 430 | 435 |
| Glu Leu Gln Asp Gly Glu Asp Glu Gly | Tyr Phe Gln Glu Leu Leu | |
| 440 | 445 | 450 |
| Gly Ser Val Asn Ser Leu Leu Lys Glu | Leu Arg | |
| 455 | 460 | |

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 <212> DNA
 <213> Homo sapiens

<400> 302
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 ggtggagtgt cccatccttt taatcaaggt gattgtgatt ttgactaata 2050
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 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 2136

<210> 303
 <211> 247
 <212> PRT
 <213> Homo sapiens

<400> 303

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Gly | Ala | Ala | Val | Phe | Phe | Gly | Cys | Thr | Phe | Val | Ala | Phe | Gly | 1 | 5 | 10 | 15 |
| Pro | Ala | Phe | Ala | Leu | Phe | Leu | Ile | Thr | Val | Ala | Gly | Asp | Pro | Leu | 20 | 25 | 30 | |
| Arg | Val | Ile | Ile | Leu | Val | Ala | Gly | Ala | Phe | Phe | Trp | Leu | Val | Ser | 35 | 40 | 45 | |
| Leu | Leu | Leu | Ala | Ser | Val | Val | Trp | Phe | Ile | Leu | Val | His | Val | Thr | 50 | 55 | 60 | |
| Asp | Arg | Ser | Asp | Ala | Arg | Leu | Gln | Tyr | Gly | Leu | Leu | Ile | Phe | Gly | 65 | 70 | 75 | |
| Ala | Ala | Val | Ser | Val | Leu | Leu | Gln | Glu | Val | Phe | Arg | Phe | Ala | Tyr | 80 | 85 | 90 | |
| Tyr | Lys | Leu | Leu | Lys | Lys | Ala | Asp | Glu | Gly | Leu | Ala | Ser | Leu | Ser | 95 | 100 | 105 | |
| Glu | Asp | Gly | Arg | Ser | Pro | Ile | Ser | Ile | Arg | Gln | Met | Ala | Tyr | Val | 110 | 115 | 120 | |
| Ser | Gly | Leu | Ser | Phe | Gly | Ile | Ile | Ser | Gly | Val | Phe | Ser | Val | Ile | 125 | 130 | 135 | |
| Asn | Ile | Leu | Ala | Asp | Ala | Leu | Gly | Pro | Gly | Val | Val | Gly | Ile | His | 140 | 145 | 150 | |
| Gly | Asp | Ser | Pro | Tyr | Tyr | Phe | Leu | Thr | Ser | Ala | Phe | Leu | Thr | Ala | 155 | 160 | 165 | |
| Ala | Ile | Ile | Leu | Leu | His | Thr | Phe | Trp | Gly | Val | Val | Phe | Phe | Asp | 170 | 175 | 180 | |
| Ala | Cys | Glu | Arg | Arg | Arg | Tyr | Trp | Ala | Leu | Gly | Leu | Val | Val | Gly | 185 | 190 | 195 | |
| Ser | His | Leu | Leu | Thr | Ser | Gly | Leu | Thr | Phe | Leu | Asn | Pro | Trp | Tyr | 200 | 205 | 210 | |
| Glu | Ala | Ser | Leu | Leu | Pro | Ile | Tyr | Ala | Val | Thr | Val | Ser | Met | Gly | 215 | 220 | 225 | |
| Leu | Trp | Ala | Phe | Ile | Thr | Ala | Gly | Gly | Ser | Leu | Arg | Ser | Ile | Gln | 230 | 235 | 240 | |
| Arg | Ser | Leu | Leu | Cys | Lys | Asp | 245 | | | | | | | | | | | |

<210> 304
 <211> 240
 <212> DNA
 <213> Homo sapiens

<220>

<221> unsure
<222> 108, 123, 126, 154, 198, 206, 217
<223> unknown base

<400> 304
aagctgggtt aaggaagcag aggagggtta gattcgttga gtgaggacgg 50
aagatcaacc catttccatt ccgccagatg gcctatgttt ctggtctctc 100
ccttcggnat catcagtggg gntttntctg ttatcaatat tttggctgat 150
gcanttgggc caggtgtggg tgggatccat ggagactcac cctattantt 200
cctganttca gcctttntga cagcagccat tatcctgctc 240

<210> 305
<211> 378
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 58, 94, 132, 186, 191, 220, 240, 248, 280, 311, 332
<223> unknown base

<400> 305
gaccgaccgt tcagatgccc ggttccagta cggcttcctg atttttggtg 50
ctgctgtntc tgtccttcta caggaggtgt tccgctttgc ctantacaag 100
ctgcttaaga aggcagatga gggggttagca tngctgagtg aggacggaag 150
atcacccatt tccatccgcc agatggccta tgtttntggg ntttccttcg 200
gtatcatcag tgggtgtttt tctgttatca atattttggn tgatgcantt 250
gggccagggtg tgggtgggat ccatggagan tcaccctatt aattcctgaa 300
ttcagccttt ntgacagcag ccattatcct gntccatacc ttttggggag 350
ttgtgttttt tgatgcctgt gagaggag 378

<210> 306
<211> 655
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 1, 22, 129, 133, 184
<223> unknown base

<400> 306
ngttggagaa gtggcgcgga cnttcatttg gggtttcggt ttccccctt 50
tccctttccc cggggtcttg ggtgacattg cacgggcccc tcgtggggtc 100
gcgttgccac cccacgcgga ctccccagnt gnggcgcct tccatttgc 150
ctgtcctggg caggccccca ccccccttc cacntgacca gccatggggg 200
ctgcggtgtt tttcggctgc actttcgtcg cgttcggccc ggccttcgcg 250

cttttcttga tcaactgtggc tggggaccog cttcgcgtta tcacccctggt 300
 cgcaggggca tttttctggc tgggtctccct gtcctgggc tctgtggtct 350
 ggttcattctt ggtccatgtg accgaccggt cagatgccc gctccagtac 400
 ggcctcctga tttttggtgc tgctgtctct gtccttctac aggaggtgtt 450
 ccgctttgcc tactacaagc tgcttaagaa ggcagatgag gggtttagcat 500
 cgctgagtga ggacggaaga tcacccatct ccatccgcca gatggcctat 550
 gtttctggtc tctccttcgg tatcatcagt ggtgtcttct ctgttatcaa 600
 tattttggct gatgcacttg ggccaggtgt ggttgggatc catggagact 650
 ccccc 655

<210> 307
 <211> 650
 <212> DNA
 <213> Homo sapiens

<220>
 <221> unsure
 <222> 52, 89, 128
 <223> unknown base

<400> 307
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 cnttccccgg ggtctggggg tgacattgca ccgcgccct cgtggggctcg 100
 cgttgccacc ccacgcgac tccccagntg gcgcgccct cccatttgcc 150
 tgtcctggtc agggccccac ccccttccc acctgaccag ccatgggggc 200
 tgcggtgttt ttggggctgc actttcgtcg cgttcggggc cggccttcgc 250
 gcttttcttg atcaactgtg ctggggacc cgttcgcgtt atcatcctgg 300
 tcgcaggggc atttttctgg ctgggtctcc tgctcctggc ctctgtggtc 350
 tggttcatct tgggtccatgt gaccgaccg tcagatgcc ggctccagta 400
 cggcctcctg atttttggtg ctgctgtctc tgccttcta caggaggtgt 450
 tccgctttgc ctactacaag ctgcttaaga aggcagatga ggggttagca 500
 tcgctgagtg aggacggaag atcaccatc tccatccgcc agatggccta 550
 tgtttctggt ctctccttcg gtatcatcag tgggtgtctt tctgttatca 600
 atattttggc tgatgcactt gggccaggtg tggttgggat ccatggagac 650

<210> 308
 <211> 1570
 <212> DNA
 <213> Homo sapiens

<400> 308
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aggaggaggc agtggccagg aaggcacagg cctgagaagt ctgcggtga 100
gctgggagca aatccccac cccctacctg ggggacaggg caagtgagac 150
ctggtgaggg tggctcagca ggcaggaag gagaggtgtc tgtgcgtcct 200
gcaccacat ctttctctgt cccctccttg ccctgtctgg aggtgtctag 250
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ggtggcccg ccttgtggtt cctctctacc tggggaaata aggtgcagcg 350
gccatggcta cagcaagacc cccctggatg tgggtgctct gtgctctgat 400
cacagccttg cttctggggg tcacagagca tgttctcgcc aacaatgatg 450
tttctgtga ccaccctct aacaccgtgc cctctgggag caaccaggac 500
ctgggagctg gggccgggga agacgcccg tcggatgaca gcagcagccg 550
catcatcaat ggatccgact gcgatatgca caccagccg tggcaggccg 600
cgctgttgct aaggcccaac cagctctact gcggggcggt gttggtgcat 650
ccacagtggc tgcacagcg cgccactgc aggaagaaag tttcagagt 700
ccgtctcggc cactactccc tgtcaccagt ttatgaatct gggcagcaga 750
tgttccaggg ggtcaaatcc atccccacc ctggctactc ccaccctggc 800
cactctaacg acctcatgct catcaaactg aacagaagaa ttcgtccac 850
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caaagtgtt ggtgtctggc tgggggacaa ccaagagccc ccaagtgcac 950
ttccctaagg toctccagt cttgaatatc agcgtgctaa gtcagaaaag 1000
gtgcgaggat gcttaccga gacagataga tgacaccatg ttctgcgccg 1050
gtgacaaagc aggtagagac tcctgccagg gtgattctgg ggggcctgtg 1100
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gcggggggtg cgtctcaatc tccctggggc actttcatcc tcaagctcag 1500
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ctgagaagtg gaaaaaaaaa 1570

<210> 309

<210> 310
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 310
 tcctgtgacc acccctctaa cacc 24

<210> 311
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 311
 ctggaacatc tgctgcccag attc 24

<210> 312
 <211> 50
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 312
 gtgggatgac agcagcagcc gcatcatcaa tggatccgac tgcgatatgc 50

<210> 313
 <211> 3010
 <212> DNA
 <213> Homo sapiens

<400> 313
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 ccggccgcgc gacaagccgc agcggccgag ctgcggctac gtgctgtgca 100
 ccgtgtgtgt ggccctgggt gtgtgtgtgt ctgtagctgt caccggtgcc 150
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 acatgcgcag 3010

<210> 314
 <211> 461
 <212> PRT
 <213> Homo sapiens

<400> 314
 Met Val Asn Asp Arg Trp Lys Thr Met Gly Gly Ala Ala Gln Leu
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 Glu Asp Arg Pro Arg Asp Lys Pro Gln Arg Pro Ser Cys Gly Tyr
 20 25 30
 Val Leu Cys Thr Val Leu Leu Ala Leu Ala Val Leu Leu Ala Val
 35 40 45
 Ala Val Thr Gly Ala Val Leu Phe Leu Asn His Ala His Ala Pro
 50 55 60
 Gly Thr Ala Pro Pro Pro Val Val Ser Thr Gly Ala Ala Ser Ala
 65 70 75
 Asn Ser Ala Leu Val Thr Val Glu Arg Ala Asp Ser Ser His Leu
 80 85 90
 Ser Ile Leu Ile Asp Pro Arg Cys Pro Asp Leu Thr Asp Ser Phe
 95 100 105

| | | | | | |
|---------------------|-----------------|-------------------------|-----|-----|-----|
| Ala Arg Leu Glu Ser | Ala Gln Ala Ser | Val Leu Gln Ala Leu Thr | 110 | 115 | 120 |
| Glu His Gln Ala Gln | Pro Arg Leu Val | Gly Asp Gln Glu Gln Glu | 125 | 130 | 135 |
| Leu Leu Asp Thr Leu | Ala Asp Gln Leu | Pro Arg Leu Leu Ala Arg | 140 | 145 | 150 |
| Ala Ser Glu Leu Gln | Thr Glu Cys Met | Gly Leu Arg Lys Gly His | 155 | 160 | 165 |
| Gly Thr Leu Gly Gln | Gly Leu Ser Ala | Leu Gln Ser Glu Gln Gly | 170 | 175 | 180 |
| Arg Leu Ile Gln Leu | Leu Ser Glu Ser | Gln Gly His Met Ala His | 185 | 190 | 195 |
| Leu Val Asn Ser Val | Ser Asp Ile Leu | Asp Ala Leu Gln Arg Asp | 200 | 205 | 210 |
| Arg Gly Leu Gly Arg | Pro Arg Asn Lys | Ala Asp Leu Gln Arg Ala | 215 | 220 | 225 |
| Pro Ala Arg Gly Thr | Arg Pro Arg Gly | Cys Ala Thr Gly Ser Arg | 230 | 235 | 240 |
| Pro Arg Asp Cys Leu | Asp Val Leu Leu | Ser Gly Gln Gln Asp Asp | 245 | 250 | 255 |
| Gly Val Tyr Ser Val | Phe Pro Thr His | Tyr Pro Ala Gly Phe Gln | 260 | 265 | 270 |
| Val Tyr Cys Asp Met | Arg Thr Asp Gly | Gly Gly Trp Thr Val Phe | 275 | 280 | 285 |
| Gln Arg Arg Glu Asp | Gly Ser Val Asn | Phe Phe Arg Gly Trp Asp | 290 | 295 | 300 |
| Ala Tyr Arg Asp Gly | Phe Gly Arg Leu | Thr Gly Glu His Trp Leu | 305 | 310 | 315 |
| Gly Leu Lys Arg Ile | His Ala Leu Thr | Thr Gln Ala Ala Tyr Glu | 320 | 325 | 330 |
| Leu His Val Asp Leu | Glu Asp Phe Glu | Asn Gly Thr Ala Tyr Ala | 335 | 340 | 345 |
| Arg Tyr Gly Ser Phe | Gly Val Gly Leu | Phe Ser Val Asp Pro Glu | 350 | 355 | 360 |
| Glu Asp Gly Tyr Pro | Leu Thr Val Ala | Asp Tyr Ser Gly Thr Ala | 365 | 370 | 375 |
| Gly Asp Ser Leu Leu | Lys His Ser Gly | Met Arg Phe Thr Thr Lys | 380 | 385 | 390 |
| Asp Arg Asp Ser Asp | His Ser Glu Asn | Asn Cys Ala Ala Phe Tyr | 395 | 400 | 405 |
| Arg Gly Ala Trp Trp | Tyr Arg Asn Cys | His Thr Ser Asn Leu Asn | 410 | 415 | 420 |

Gly Gln Tyr Leu Arg Gly Ala His Ala Ser Tyr Ala Asp Gly Val
425 430 435

Glu Trp Ser Ser Trp Thr Gly Trp Gln Tyr Ser Leu Lys Phe Ser
440 445 450

Glu Met Lys Ile Arg Pro Val Arg Glu Asp Arg
455 460

<210> 315
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 315
cacacgtcca acctcaatgg gcag 24

<210> 316
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 316
gaccagcagg gccaaaggaca agg 23

<210> 317
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 317
gttctctgag atgaagatcc ggccggtccg ggagtaccgc ttag 44

<210> 318
<211> 1841
<212> DNA
<213> Homo sapiens

<400> 318
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ggcaatccga ccacatttca ctctaccgc ttaggaatc cagatgcagg 150
ccaagtacag cagcacgagg gacatgctgg atgatgatgg ggacaccacc 200
atgagcctgc attctcaagc ctctgccaca actcggcatc cagagccccg 250
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 <212> PRT
 <213> Homo sapiens

<400> 319

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Gln | Ala | Lys | Tyr | Ser | Ser | Thr | Arg | Asp | Met | Leu | Asp | Asp | Asp | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Asp | Thr | Thr | Met | Ser | Leu | His | Ser | Gln | Ala | Ser | Ala | Thr | Thr | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Arg | His | Pro | Glu | Pro | Arg | Arg | Thr | Glu | His | Arg | Ala | Pro | Ser | Ser | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Thr | Trp | Arg | Pro | Val | Ala | Leu | Thr | Leu | Leu | Thr | Leu | Cys | Leu | Val | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Leu | Leu | Ile | Gly | Leu | Ala | Ala | Leu | Gly | Leu | Leu | Phe | Phe | Gln | Tyr | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Tyr | Gln | Leu | Ser | Asn | Thr | Gly | Gln | Asp | Thr | Ile | Ser | Gln | Met | Glu | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Glu | Arg | Leu | Gly | Asn | Thr | Ser | Gln | Glu | Leu | Gln | Ser | Leu | Gln | Val | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Gln | Asn | Ile | Lys | Leu | Ala | Gly | Ser | Leu | Gln | His | Val | Ala | Glu | Lys | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Leu | Cys | Arg | Glu | Leu | Tyr | Asn | Lys | Ala | Gly | Ala | His | Arg | Cys | Ser | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Pro | Cys | Thr | Glu | Gln | Trp | Lys | Trp | His | Gly | Asp | Asn | Cys | Tyr | Gln | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Phe | Tyr | Lys | Asp | Ser | Lys | Ser | Trp | Glu | Asp | Cys | Lys | Tyr | Phe | Cys | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Leu | Ser | Glu | Asn | Ser | Thr | Met | Leu | Lys | Ile | Asn | Lys | Gln | Glu | Asp | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Leu | Glu | Phe | Ala | Ala | Ser | Gln | Ser | Tyr | Ser | Glu | Phe | Phe | Tyr | Ser | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Tyr | Trp | Thr | Gly | Leu | Leu | Arg | Pro | Asp | Ser | Gly | Lys | Ala | Trp | Leu | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Trp | Met | Asp | Gly | Thr | Pro | Phe | Thr | Ser | Glu | Leu | Phe | His | Ile | Ile | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Ile | Asp | Val | Thr | Ser | Pro | Arg | Ser | Arg | Asp | Cys | Val | Ala | Ile | Leu | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Asn | Gly | Met | Ile | Phe | Ser | Lys | Asp | Cys | Lys | Glu | Leu | Lys | Arg | Cys | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Cys | Glu | Arg | Arg | Ala | Gly | Met | Val | Lys | Pro | Glu | Ser | Leu | His | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Val | Pro | Pro | Glu | Thr | Leu | Gly | Glu | Gly | Asp | | | | | | |
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<211> 468

<212> DNA

<213> Homo sapiens

<220>
<221> unsure
<222> 59, 95, 149, 331, 364, 438, 446
<223> unknown base

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cctttttcaa cgtggcgacc agtggccctg accctgctga ctttgtgctt 200
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gcttgacagga agtntgcagc atgtggctga aaaactctgt cgtgagctgt 400
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atacacacac cacttccc 468

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<220>
<223> Synthetic oligonucleotide probe

<400> 323
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<210> 324
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<223> Synthetic oligonucleotide probe

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<211> 2988

<212> DNA

<213> Homo sapiens

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gagggagcgg gcccgccgc ggggcccag ccctccggat ccgccccctc 150
cccgggtccc cccctcggga gactcctctg gctgctctgg gggttcgccg 200
gggcccggga cccgcggtcc gggcgccatg cgggcatcgc tgctgctgtc 250
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<211> 775

<212> PRT

<213> Homo sapiens

<400> 326

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Arg | Ala | Ser | Leu | Leu | Leu | Ser | Val | Leu | Arg | Pro | Ala | Gly | Pro | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Ala | Val | Gly | Ile | Ser | Leu | Gly | Phe | Thr | Leu | Ser | Leu | Leu | Ser | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Val | Thr | Trp | Val | Glu | Glu | Pro | Cys | Gly | Pro | Gly | Pro | Pro | Gln | Pro | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Gly | Asp | Ser | Glu | Leu | Pro | Pro | Arg | Gly | Asn | Thr | Asn | Ala | Ala | Arg | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Arg | Pro | Asn | Ser | Val | Gln | Pro | Gly | Ala | Glu | Arg | Glu | Lys | Pro | Gly | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Ala | Gly | Glu | Gly | Ala | Gly | Glu | Asn | Trp | Glu | Pro | Arg | Val | Leu | Pro | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Tyr | His | Pro | Ala | Gln | Pro | Gly | Gln | Ala | Ala | Lys | Lys | Ala | Val | Arg | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Thr | Arg | Tyr | Ile | Ser | Thr | Glu | Leu | Gly | Ile | Arg | Gln | Arg | Leu | Leu | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Val | Ala | Val | Leu | Thr | Ser | Gln | Thr | Thr | Leu | Pro | Thr | Leu | Gly | Val | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Ala | Val | Asn | Arg | Thr | Leu | Gly | His | Arg | Leu | Glu | Arg | Val | Val | Phe | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Leu | Thr | Gly | Ala | Arg | Gly | Arg | Arg | Ala | Pro | Pro | Gly | Met | Ala | Val | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Val | Thr | Leu | Gly | Glu | Glu | Arg | Pro | Ile | Gly | His | Leu | His | Leu | Ala | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Leu | Arg | His | Leu | Leu | Glu | Gln | His | Gly | Asp | Asp | Phe | Asp | Trp | Phe | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Phe | Leu | Val | Pro | Asp | Thr | Thr | Tyr | Thr | Glu | Ala | His | Gly | Leu | Ala | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Arg | Leu | Thr | Gly | His | Leu | Ser | Leu | Ala | Ser | Ala | Ala | His | Leu | Tyr | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Leu | Gly | Arg | Pro | Gln | Asp | Phe | Ile | Gly | Gly | Glu | Pro | Thr | Pro | Gly | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Arg | Tyr | Cys | His | Gly | Gly | Phe | Gly | Val | Leu | Leu | Ser | Arg | Met | Leu | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Gln | Gln | Leu | Arg | Pro | His | Leu | Glu | Gly | Cys | Arg | Asn | Asp | Ile | |
| | | | | 260 | | | | | 265 | | | | | 270 | |

| | | | | |
|-----------------|---|-----|-----|-----|
| Val Ser Ala Arg | Pro Asp Glu Trp Leu Gly Arg Cys Ile Leu Asp | 275 | 280 | 285 |
| Ala Thr Gly Val | Gly Cys Thr Gly Asp His Glu Gly Val His Tyr | 290 | 295 | 300 |
| Ser His Leu Glu | Leu Ser Pro Gly Glu Pro Val Gln Glu Gly Asp | 305 | 310 | 315 |
| Pro His Phe Arg | Ser Ala Leu Thr Ala His Pro Val Arg Asp Pro | 320 | 325 | 330 |
| Val His Met Tyr | Gln Leu His Lys Ala Phe Ala Arg Ala Glu Leu | 335 | 340 | 345 |
| Glu Arg Thr Tyr | Gln Glu Ile Gln Glu Leu Gln Trp Glu Ile Gln | 350 | 355 | 360 |
| Asn Thr Ser His | Leu Ala Val Asp Gly Asp Arg Ala Ala Ala Trp | 365 | 370 | 375 |
| Pro Val Gly Ile | Pro Ala Pro Ser Arg Pro Ala Ser Arg Phe Glu | 380 | 385 | 390 |
| Val Leu Arg Trp | Asp Tyr Phe Thr Glu Gln His Ala Phe Ser Cys | 395 | 400 | 405 |
| Ala Asp Gly Ser | Pro Arg Cys Pro Leu Arg Gly Ala Asp Arg Ala | 410 | 415 | 420 |
| Asp Val Ala Asp | Val Leu Gly Thr Ala Leu Glu Glu Leu Asn Arg | 425 | 430 | 435 |
| Arg Tyr His Pro | Ala Leu Arg Leu Gln Lys Gln Gln Leu Val Asn | 440 | 445 | 450 |
| Gly Tyr Arg Arg | Phe Asp Pro Ala Arg Gly Met Glu Tyr Thr Leu | 455 | 460 | 465 |
| Asp Leu Gln Leu | Glu Ala Leu Thr Pro Gln Gly Gly Arg Arg Pro | 470 | 475 | 480 |
| Leu Thr Arg Arg | Val Gln Leu Leu Arg Pro Leu Ser Arg Val Glu | 485 | 490 | 495 |
| Ile Leu Pro Val | Pro Tyr Val Thr Glu Ala Ser Arg Leu Thr Val | 500 | 505 | 510 |
| Leu Leu Pro Leu | Ala Ala Ala Glu Arg Asp Leu Ala Pro Gly Phe | 515 | 520 | 525 |
| Leu Glu Ala Phe | Ala Thr Ala Ala Leu Glu Pro Gly Asp Ala Ala | 530 | 535 | 540 |
| Ala Ala Leu Thr | Leu Leu Leu Tyr Glu Pro Arg Gln Ala Gln | 545 | 550 | 555 |
| Arg Val Ala His | Ala Asp Val Phe Ala Pro Val Lys Ala His Val | 560 | 565 | 570 |
| Ala Glu Leu Glu | Arg Arg Phe Pro Gly Ala Arg Val Pro Trp Leu | 575 | 580 | 585 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Val | Gln | Thr | Ala | Ala | Pro | Ser | Pro | Leu | Arg | Leu | Met | Asp | Leu |
| | | | | 590 | | | | | 595 | | | | | 600 |
| Leu | Ser | Lys | Lys | His | Pro | Leu | Asp | Thr | Leu | Phe | Leu | Leu | Ala | Gly |
| | | | | 605 | | | | | 610 | | | | | 615 |
| Pro | Asp | Thr | Val | Leu | Thr | Pro | Asp | Phe | Leu | Asn | Arg | Cys | Arg | Met |
| | | | | 620 | | | | | 625 | | | | | 630 |
| His | Ala | Ile | Ser | Gly | Trp | Gln | Ala | Phe | Phe | Pro | Met | His | Phe | Gln |
| | | | | 635 | | | | | 640 | | | | | 645 |
| Ala | Phe | His | Pro | Gly | Val | Ala | Pro | Pro | Gln | Gly | Pro | Gly | Pro | Pro |
| | | | | 650 | | | | | 655 | | | | | 660 |
| Glu | Leu | Gly | Arg | Asp | Thr | Gly | Arg | Phe | Asp | Arg | Gln | Ala | Ala | Ser |
| | | | | 665 | | | | | 670 | | | | | 675 |
| Glu | Ala | Cys | Phe | Tyr | Asn | Ser | Asp | Tyr | Val | Ala | Ala | Arg | Gly | Arg |
| | | | | 680 | | | | | 685 | | | | | 690 |
| Leu | Ala | Ala | Ala | Ser | Glu | Gln | Glu | Glu | Glu | Leu | Leu | Glu | Ser | Leu |
| | | | | 695 | | | | | 700 | | | | | 705 |
| Asp | Val | Tyr | Glu | Leu | Phe | Leu | His | Phe | Ser | Ser | Leu | His | Val | Leu |
| | | | | 710 | | | | | 715 | | | | | 720 |
| Arg | Ala | Val | Glu | Pro | Ala | Leu | Leu | Gln | Arg | Tyr | Arg | Ala | Gln | Thr |
| | | | | 725 | | | | | 730 | | | | | 735 |
| Cys | Ser | Ala | Arg | Leu | Ser | Glu | Asp | Leu | Tyr | His | Arg | Cys | Leu | Gln |
| | | | | 740 | | | | | 745 | | | | | 750 |
| Ser | Val | Leu | Glu | Gly | Leu | Gly | Ser | Arg | Thr | Gln | Leu | Ala | Met | Leu |
| | | | | 755 | | | | | 760 | | | | | 765 |
| Leu | Phe | Glu | Gln | Glu | Gln | Gly | Asn | Ser | Thr | | | | | |
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<210> 331
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<400> 331
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<210> 332
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<210> 333
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<212> DNA
<213> Homo sapiens

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gctttttaga agcttgattt cctttgaaga tgaaagacta gcggaagctc 200
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 Met Ala Ala Gly Leu Phe Gly Leu Ser Ala Arg Arg Leu Leu Ala
 1 5 10 15
 Ala Ala Ala Thr Arg Gly Leu Pro Ala Ala Arg Val Arg Trp Glu
 20 25 30
 Ser Ser Phe Ser Arg Thr Val Val Ala Pro Ser Ala Val Ala Gly
 35 40 45
 Lys Arg Pro Pro Glu Pro Thr Thr Pro Trp Gln Glu Asp Pro Glu
 50 55 60
 Pro Glu Asp Glu Asn Leu Tyr Glu Lys Asn Pro Asp Ser His Gly
 65 70 75
 Tyr Asp Lys Asp Pro Val Leu Asp Val Trp Asn Met Arg Leu Val
 80 85 90
 Phe Phe Phe Gly Val Ser Ile Ile Leu Val Leu Gly Ser Thr Phe
 95 100 105
 Val Ala Tyr Leu Pro Asp Tyr Arg Met Lys Glu Trp Ser Arg Arg
 110 115 120
 Glu Ala Glu Arg Leu Val Lys Tyr Arg Glu Ala Asn Gly Leu Pro
 125 130 135
 Ile Met Glu Ser Asn Cys Phe Asp Pro Ser Lys Ile Gln Leu Pro
 140 145 150

Glu Asp Glu

<210> 335
<211> 442
<212> DNA
<213> Homo sapiens

<400> 335
ggcggctggg ctgtttggtt tgagcgctcg ccgtcttttg gcggcagcgg 50
cgacgcgagg gctcccggcc gcccgctcc gctgggaatc tagcttctcc 100
aggactgtgg tcgccccgtc cgctgtggcg ggaaagcggc cccagaacc 150
gaccacaccg tggcaagagg acccagaacc cgaggacgaa aacttgtatg 200
agaagaacc agactcccat ggttatgaca aggaccccg tttggacgtc 250
tggaacatgc gacttgtctt cttctttggc gtctccatca tcctggtcct 300
tggcagcacc tttgtggcct atctgcctga ctacaggatg aaagagtgg 350
cccgccgcga agctgagagg cttgtgaaat accgagaggc caatggcctt 400
cccatcatgg aatccaactg cttcgacccc agcaagatcc ag 442

<210> 336
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 336
ctgagaccct gcagcaccat ctg 23

<210> 337
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 337
ggtgcttctt gagccccact tagc 24

<210> 338
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 338
aatctagctt ctccaggact gtggtcgccc cgtccgctgt 40

<210> 339
<211> 2162
<212> DNA

<213> Homo sapiens

<400> 339

gcggcggtta tgccgcttgc tctgctcgtc ctgttgctcc tggggcccg 50
cggctggtgc cttgcagaac cccacgcga cagcctgcgg gaggaacttg 100
tcatcacccc gctgccttcc ggggacgtag ccgccacatt ccagttccgc 150
acgcgctggg attcggagct tcagcgggaa ggagtgtccc attacaggct 200
ctttcccaaa gccctggggc agctgatctc caagtattct ctacgggagc 250
tgcacctgtc attcacacaa ggcttttgga ggaccgata ctgggggcca 300
cccttcctgc aggccccatc aggtgcagag ctgtgggtct ggttccaaga 350
cactgtcact gatgtggata aatottgga ggagctcagt aatgtcctct 400
cagggatctt ctgcgcctct ctcaacttca tcgactccac caacacagtc 450
actcccactg cctccttcaa acccctgggt ctggccaatg aactgacca 500
ctactttctg cgctatgtg tgcgtccgcg ggaggtggtc tgcaccgaaa 550
acctcacccc ctggaagaag ctcttgccct gtagttccaa ggcaggcctc 600
tctgtgctgc tgaaggcaga tcgcttggtc cacaccagct accactocca 650
ggcagtgc atccgccctg tttgcagaaa tgcacgctgt actagcatct 700
cctgggagct gaggcagacc ctgtcagttg tatttgatgc cttcatcag 750
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cacggagccc tgccccctgg cttcagagag ccgagtctat gtggacatca 850
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cggccaactc agtcaccaag gtttccatcc agtttgagcg ggcgctgctg 1350
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tatccggcgc gcccagagtg tccccccact ctgattcttg ccctttccag 1750
cagctgcagc tgccgtttct ctctggggag gggagcccaa gggctgtttc 1800
tgccacttgc tctcctcaga gttggctttt gaaccaaagt gccctggacc 1850
aggtcagggc ctacagctgt gttgtccagt acaggagcca cgagccaaat 1900
gtggcatttg aatttgaatt aacttagaaa ttcatttcct cacctgtagt 1950
ggccacctct atattgaggt gctcaataag caaaagtggc cgggtggctgc 2000
tgtattggac agcacagaaa aagatttcca tcaccacaga aaggtcggct 2050
ggcagcactg gccaaagtg tgggggtgtgc tacacagtgt atgtcactgt 2100
gtagtggatg gagtttactg tttgtggaat aaaaacggct gtttccgtgg 2150
aaaaaaaaaa aa 2162

<210> 340

<211> 574

<212> PRT

<213> Homo sapiens

<400> 340

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Leu | Ala | Leu | Leu | Val | Leu | Leu | Leu | Gly | Pro | Gly | Gly | 1 | 5 | 10 | 15 |
| Trp | Cys | Leu | Ala | Glu | Pro | Pro | Arg | Asp | Ser | Leu | Arg | Glu | Glu | Leu | 20 | 25 | 30 |
| Val | Ile | Thr | Pro | Leu | Pro | Ser | Gly | Asp | Val | Ala | Ala | Thr | Phe | Gln | 35 | 40 | 45 |
| Phe | Arg | Thr | Arg | Trp | Asp | Ser | Glu | Leu | Gln | Arg | Glu | Gly | Val | Ser | 50 | 55 | 60 |
| His | Tyr | Arg | Leu | Phe | Pro | Lys | Ala | Leu | Gly | Gln | Leu | Ile | Ser | Lys | 65 | 70 | 75 |
| Tyr | Ser | Leu | Arg | Glu | Leu | His | Leu | Ser | Phe | Thr | Gln | Gly | Phe | Trp | 80 | 85 | 90 |
| Arg | Thr | Arg | Tyr | Trp | Gly | Pro | Pro | Phe | Leu | Gln | Ala | Pro | Ser | Gly | 95 | 100 | 105 |
| Ala | Glu | Leu | Trp | Val | Trp | Phe | Gln | Asp | Thr | Val | Thr | Asp | Val | Asp | 110 | 115 | 120 |
| Lys | Ser | Trp | Lys | Glu | Leu | Ser | Asn | Val | Leu | Ser | Gly | Ile | Phe | Cys | 125 | 130 | 135 |
| Ala | Ser | Leu | Asn | Phe | Ile | Asp | Ser | Thr | Asn | Thr | Val | Thr | Pro | Thr | 140 | 145 | 150 |

| | | | | | |
|-----------------|---------------------|-------------------------|-----|-----|-----|
| Ala Ser Phe Lys | Pro Leu Gly Leu Ala | Asn Asp Thr Asp His Tyr | 155 | 160 | 165 |
| Phe Leu Arg Tyr | Ala Val Leu Pro Arg | Glu Val Val Cys Thr Glu | 170 | 175 | 180 |
| Asn Leu Thr Pro | Trp Lys Lys Leu Leu | Pro Cys Ser Ser Lys Ala | 185 | 190 | 195 |
| Gly Leu Ser Val | Leu Leu Lys Ala Asp | Arg Leu Phe His Thr Ser | 200 | 205 | 210 |
| Tyr His Ser Gln | Ala Val His Ile Arg | Pro Val Cys Arg Asn Ala | 215 | 220 | 225 |
| Arg Cys Thr Ser | Ile Ser Trp Glu Leu | Arg Gln Thr Leu Ser Val | 230 | 235 | 240 |
| Val Phe Asp Ala | Phe Ile Thr Gly Gln | Gly Lys Lys Asp Trp Ser | 245 | 250 | 255 |
| Leu Phe Arg Met | Phe Ser Arg Thr Leu | Thr Glu Pro Cys Pro Leu | 260 | 265 | 270 |
| Ala Ser Glu Ser | Arg Val Tyr Val Asp | Ile Thr Thr Tyr Asn Gln | 275 | 280 | 285 |
| Asp Asn Glu Thr | Leu Glu Val His Pro | Pro Pro Thr Thr Thr Tyr | 290 | 295 | 300 |
| Gln Asp Val Ile | Leu Gly Thr Arg Lys | Thr Tyr Ala Ile Tyr Asp | 305 | 310 | 315 |
| Leu Leu Asp Thr | Ala Met Ile Asn Asn | Ser Arg Asn Leu Asn Ile | 320 | 325 | 330 |
| Gln Leu Lys Trp | Lys Arg Pro Pro Glu | Asn Glu Ala Pro Pro Val | 335 | 340 | 345 |
| Pro Phe Leu His | Ala Gln Arg Tyr Val | Ser Gly Tyr Gly Leu Gln | 350 | 355 | 360 |
| Lys Gly Glu Leu | Ser Thr Leu Leu Tyr | Asn Thr His Pro Tyr Arg | 365 | 370 | 375 |
| Ala Phe Pro Val | Leu Leu Leu Asp Thr | Val Pro Trp Tyr Leu Arg | 380 | 385 | 390 |
| Leu Tyr Val His | Thr Leu Thr Ile Thr | Ser Lys Gly Lys Glu Asn | 395 | 400 | 405 |
| Lys Pro Ser Tyr | Ile His Tyr Gln Pro | Ala Gln Asp Arg Leu Gln | 410 | 415 | 420 |
| Pro His Leu Leu | Glu Met Leu Ile Gln | Leu Pro Ala Asn Ser Val | 425 | 430 | 435 |
| Thr Lys Val Ser | Ile Gln Phe Glu Arg | Ala Leu Leu Lys Trp Thr | 440 | 445 | 450 |
| Glu Tyr Thr Pro | Asp Pro Asn His Gly | Phe Tyr Val Ser Pro Ser | 455 | 460 | 465 |

Val Leu Ser Ala Leu Val Pro Ser Met Val Ala Ala Lys Pro Val
470 475 480

Asp Trp Glu Glu Ser Pro Leu Phe Asn Ser Leu Phe Pro Val Ser
485 490 495

Asp Gly Ser Asn Tyr Phe Val Arg Leu Tyr Thr Glu Pro Leu Leu
500 505 510

Val Asn Leu Pro Thr Pro Asp Phe Ser Met Pro Tyr Asn Val Ile
515 520 525

Cys Leu Thr Cys Thr Val Val Ala Val Cys Tyr Gly Ser Phe Tyr
530 535 540

Asn Leu Leu Thr Arg Thr Phe His Ile Glu Glu Pro Arg Thr Gly
545 550 555

Gly Leu Ala Lys Arg Leu Ala Asn Leu Ile Arg Arg Ala Arg Gly
560 565 570

Val Pro Pro Leu

<210> 341
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 341
tggacaccgt accctggtat ctgc 24

<210> 342
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> Artificial Sequence
<222> 1-24
<223> Synthetic oligonucleotide probe

<400> 342
ccaactctga ggagagcaag tggc 24

<210> 343
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 343
tgtatgtgca caccctcacc atcacctcca agggcaagga gaac 44

<210> 344
<211> 762
<212> DNA
<213> Homo sapiens

<400> 344

caacatgggg tccagcagct tcttggctct catggtgtct ctcgttcttg 50
 tgaccctggt ggctgtggaa ggagttaaag agggatataga gaaagcaggg 100
 gtttgcccag ctgacaacgt acgctgcttc aagtccgatc ctccccagtg 150
 tcacacagac caggactgtc tgggggaaag gaagtgttgt tacctgcact 200
 gtggcttcaa gtgtgtgatt cctgtgaagg aactggaaga aggaggaaac 250
 aaggatgaag atgtgtcaag gccataacct gagccaggat gggaggccaa 300
 gtgtccaggc tcctcctcta ccagggtgtcc tcagaaatga tgctgggtcc 350
 tttctacctc tgggggtcac tctcacttgg cacctgcccc tgagggctct 400
 gagacttga atattggaaga agcaataccc aacccaccca aagaaaacct 450
 gagcttgaag tccttttccc caaaaagagg gaagagtcac aaaaagtcca 500
 gaccccaggg acggtacttt ccctctctac ctggtgctcc tccctaattgc 550
 tcatgaatgg acccctcatg aatgaaacca gtgcccttat aagagacccc 600
 aaagagctgc cttgcccttc tgcaatgtgt gatcacagct agaaggcact 650
 gtcagagaag agaaactggt cctcaccaga tgctgaatct gctgggtgcct 700
 tgatcttga cttcccagcc tctagaactg taagaaataa atatttgctg 750
 tttataatcc aa 762

<210> 345

<211> 111

<212> PRT

<213> Homo sapiens

<400> 345

Met Gly Ser Ser Ser Phe Leu Val Leu Met Val Ser Leu Val Leu
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 Val Thr Leu Val Ala Val Glu Gly Val Lys Glu Gly Ile Glu Lys
 20 25 30
 Ala Gly Val Cys Pro Ala Asp Asn Val Arg Cys Phe Lys Ser Asp
 35 40 45
 Pro Pro Gln Cys His Thr Asp Gln Asp Cys Leu Gly Glu Arg Lys
 50 55 60
 Cys Cys Tyr Leu His Cys Gly Phe Lys Cys Val Ile Pro Val Lys
 65 70 75
 Glu Leu Glu Glu Gly Gly Asn Lys Asp Glu Asp Val Ser Arg Pro
 80 85 90
 Tyr Pro Glu Pro Gly Trp Glu Ala Lys Cys Pro Gly Ser Ser Ser
 95 100 105
 Thr Arg Cys Pro Gln Lys
 110

<210> 346
 <211> 2528
 <212> DNA
 <213> Homo sapiens

<400> 346
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 ttcttgGCCA ggaaacctga gcggtgagac tcccagctgc ctacatcaag 100
 gcccaggac atgcagaacc ttctctatga acccgaccca ccaccatgag 150
 gtcttgCCTG tggagatgca ggcacctgag ccaaggcgtc cagtggctct 200
 tgcttctggc tgtcttggtc ttctttctct tgccttgcc ctcttttatt 250
 aaggagcctc aaacaaagcc ttccaggcat caacgcacag agaacattaa 300
 agaaaggtct ctacagtccc tggcaaagcc taagtcccag gcacccacaa 350
 gggcgaggag gacaaccatc tatgcagagc cagcgccaga gaacaatgcc 400
 ctcaacacac aaaccagcc caaggccac accaccggag acagaggaaa 450
 ggaggccaac caggcaccgc cggaggagca ggacaaggtg cccacacag 500
 cacagagggc agcatggaag agcccagaaa aagagaaaac catggtgaac 550
 aactgtcac ccagagggca agatgcaggg atggcctctg gcaggacaga 600
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 ggccgccaac ttcaaactg agcctcgggtg ggattttgag gaaaaatata 950
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 aacactttgc accaccctt ggcttcatgg agctcaacta ctcttggtg 1150
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 cacgactacg tgttccgatt gagcggagct ctcattaaag gctacgaaca 1350
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 cccagtcact ccttatattg ggcaatcggg gtttcaagaa cgtgcctctt 1450

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 ccaccactgg ggccctcctg ctgctcactg cccttcagct ctgtgaccag 1750
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 ctactatgat acatcatgga agcggctgat cttttacata aacctgact 1850
 tcaagctgga gagagaagtc tggaagcggc tacacgatga agggataatc 1900
 cggctgtacc agcgtcctgg tcccggaaact gccaaagcca agaactgacc 1950
 ggggccaggg ctgccatggt ctccttgctt gctccaaggc acaggataca 2000
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 ctcaagatgg caaatggcta attgaggttc tgaagttctt cagtacattg 2150
 ctgtaggtcc tgaggccagg gatttttaaat taaatggggg gatgggtggc 2200
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 attccagatc gagtttacag ttgtgaaatc ttgaaggtat tacttaactt 2350
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 ggtctatact tgtccttgct tttaagctat ttgacaactc tacgtgttgt 2450
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 attttctaca gtgaaaaaaaa aaaaaaaa 2528

<210> 347

<211> 600

<212> PRT

<213> Homo sapiens

<400> 347

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Ser | Cys | Leu | Trp | Arg | Cys | Arg | His | Leu | Ser | Gln | Gly | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Gln | Trp | Ser | Leu | Leu | Leu | Ala | Val | Leu | Val | Phe | Phe | Leu | Phe | Ala |
| | | | 20 | | | | | | 25 | | | | | 30 |
| Leu | Pro | Ser | Phe | Ile | Lys | Glu | Pro | Gln | Thr | Lys | Pro | Ser | Arg | His |
| | | | 35 | | | | | | 40 | | | | | 45 |
| Gln | Arg | Thr | Glu | Asn | Ile | Lys | Glu | Arg | Ser | Leu | Gln | Ser | Leu | Ala |
| | | | 50 | | | | | | 55 | | | | | 60 |
| Lys | Pro | Lys | Ser | Gln | Ala | Pro | Thr | Arg | Ala | Arg | Arg | Thr | Thr | Ile |

| 65 | | | | | | | | | | 70 | | | | | 75 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|--|--|--|
| Tyr | Ala | Glu | Pro | Ala | Pro | Glu | Asn | Asn | Ala | Leu | Asn | Thr | Gln | Thr | | | | | |
| | | | | 80 | | | | | 85 | | | | | 90 | | | | | |
| Gln | Pro | Lys | Ala | His | Thr | Thr | Gly | Asp | Arg | Gly | Lys | Glu | Ala | Asn | | | | | |
| | | | | 95 | | | | | 100 | | | | | 105 | | | | | |
| Gln | Ala | Pro | Pro | Glu | Glu | Gln | Asp | Lys | Val | Pro | His | Thr | Ala | Gln | | | | | |
| | | | | 110 | | | | | 115 | | | | | 120 | | | | | |
| Arg | Ala | Ala | Trp | Lys | Ser | Pro | Glu | Lys | Glu | Lys | Thr | Met | Val | Asn | | | | | |
| | | | | 125 | | | | | 130 | | | | | 135 | | | | | |
| Thr | Leu | Ser | Pro | Arg | Gly | Gln | Asp | Ala | Gly | Met | Ala | Ser | Gly | Arg | | | | | |
| | | | | 140 | | | | | 145 | | | | | 150 | | | | | |
| Thr | Glu | Ala | Gln | Ser | Trp | Lys | Ser | Gln | Asp | Thr | Lys | Thr | Thr | Gln | | | | | |
| | | | | 155 | | | | | 160 | | | | | 165 | | | | | |
| Gly | Asn | Gly | Gly | Gln | Thr | Arg | Lys | Leu | Thr | Ala | Ser | Arg | Thr | Val | | | | | |
| | | | | 170 | | | | | 175 | | | | | 180 | | | | | |
| Ser | Glu | Lys | His | Gln | Gly | Lys | Ala | Ala | Thr | Thr | Ala | Lys | Thr | Leu | | | | | |
| | | | | 185 | | | | | 190 | | | | | 195 | | | | | |
| Ile | Pro | Lys | Ser | Gln | His | Arg | Met | Leu | Ala | Pro | Thr | Gly | Ala | Val | | | | | |
| | | | | 200 | | | | | 205 | | | | | 210 | | | | | |
| Ser | Thr | Arg | Thr | Arg | Gln | Lys | Gly | Val | Thr | Thr | Ala | Val | Ile | Pro | | | | | |
| | | | | 215 | | | | | 220 | | | | | 225 | | | | | |
| Pro | Lys | Glu | Lys | Lys | Pro | Gln | Ala | Thr | Pro | Pro | Pro | Ala | Pro | Phe | | | | | |
| | | | | 230 | | | | | 235 | | | | | 240 | | | | | |
| Gln | Ser | Pro | Thr | Thr | Gln | Arg | Asn | Gln | Arg | Leu | Lys | Ala | Ala | Asn | | | | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | | | |
| Phe | Lys | Ser | Glu | Pro | Arg | Trp | Asp | Phe | Glu | Glu | Lys | Tyr | Ser | Phe | | | | | |
| | | | | 260 | | | | | 265 | | | | | 270 | | | | | |
| Glu | Ile | Gly | Gly | Leu | Gln | Thr | Thr | Cys | Pro | Asp | Ser | Val | Lys | Ile | | | | | |
| | | | | 275 | | | | | 280 | | | | | 285 | | | | | |
| Lys | Ala | Ser | Lys | Ser | Leu | Trp | Leu | Gln | Lys | Leu | Phe | Leu | Pro | Asn | | | | | |
| | | | | 290 | | | | | 295 | | | | | 300 | | | | | |
| Leu | Thr | Leu | Phe | Leu | Asp | Ser | Arg | His | Phe | Asn | Gln | Ser | Glu | Trp | | | | | |
| | | | | 305 | | | | | 310 | | | | | 315 | | | | | |
| Asp | Arg | Leu | Glu | His | Phe | Ala | Pro | Pro | Phe | Gly | Phe | Met | Glu | Leu | | | | | |
| | | | | 320 | | | | | 325 | | | | | 330 | | | | | |
| Asn | Tyr | Ser | Leu | Val | Gln | Lys | Val | Val | Thr | Arg | Phe | Pro | Pro | Val | | | | | |
| | | | | 335 | | | | | 340 | | | | | 345 | | | | | |
| Pro | Gln | Gln | Gln | Leu | Leu | Leu | Ala | Ser | Leu | Pro | Ala | Gly | Ser | Leu | | | | | |
| | | | | 350 | | | | | 355 | | | | | 360 | | | | | |
| Arg | Cys | Ile | Thr | Cys | Ala | Val | Val | Gly | Asn | Gly | Gly | Ile | Leu | Asn | | | | | |
| | | | | 365 | | | | | 370 | | | | | 375 | | | | | |
| Asn | Ser | His | Met | Gly | Gln | Glu | Ile | Asp | Ser | His | Asp | Tyr | Val | Phe | | | | | |

| | | |
|---|-----|-----|
| 380 | 385 | 390 |
| Arg Leu Ser Gly Ala Leu Ile Lys Gly Tyr Glu Gln Asp Val Gly | | |
| 395 | 400 | 405 |
| Thr Arg Thr Ser Phe Tyr Gly Phe Thr Ala Phe Ser Leu Thr Gln | | |
| 410 | 415 | 420 |
| Ser Leu Leu Ile Leu Gly Asn Arg Gly Phe Lys Asn Val Pro Leu | | |
| 425 | 430 | 435 |
| Gly Lys Asp Val Arg Tyr Leu His Phe Leu Glu Gly Thr Arg Asp | | |
| 440 | 445 | 450 |
| Tyr Glu Trp Leu Glu Ala Leu Leu Met Asn Gln Thr Val Met Ser | | |
| 455 | 460 | 465 |
| Lys Asn Leu Phe Trp Phe Arg His Arg Pro Gln Glu Ala Phe Arg | | |
| 470 | 475 | 480 |
| Glu Ala Leu His Met Asp Arg Tyr Leu Leu Leu His Pro Asp Phe | | |
| 485 | 490 | 495 |
| Leu Arg Tyr Met Lys Asn Arg Phe Leu Arg Ser Lys Thr Leu Asp | | |
| 500 | 505 | 510 |
| Gly Ala His Trp Arg Ile Tyr Arg Pro Thr Thr Gly Ala Leu Leu | | |
| 515 | 520 | 525 |
| Leu Leu Thr Ala Leu Gln Leu Cys Asp Gln Val Ser Ala Tyr Gly | | |
| 530 | 535 | 540 |
| Phe Ile Thr Glu Gly His Glu Arg Phe Ser Asp His Tyr Tyr Asp | | |
| 545 | 550 | 555 |
| Thr Ser Trp Lys Arg Leu Ile Phe Tyr Ile Asn His Asp Phe Lys | | |
| 560 | 565 | 570 |
| Leu Glu Arg Glu Val Trp Lys Arg Leu His Asp Glu Gly Ile Ile | | |
| 575 | 580 | 585 |
| Arg Leu Tyr Gln Arg Pro Gly Pro Gly Thr Ala Lys Ala Lys Asn | | |
| 590 | 595 | 600 |

<210> 348
 <211> 496
 <212> DNA
 <213> Homo sapiens

<400> 348
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 gaaggacaag tttctaaaac accttacagg ccctctttat tttagtccaa 150
 agtgcagcaa acacttccat agactttatc acaacaccag agactgcacc 200
 attcctgcat actataaaag atgcgccagg cttottaccc ggctggctgt 250
 cagtccagtg tgcattgagg ataagtgagc agaccgtaca ggagcagcac 300
 accaggagcc atgagaagtg ccttggaac caacagggaa acagaactat 350

ctttatacac atcccctcat ggacaagaga tttatTTTTg cagacagact 400
 cttccataag tcctttgagt tttgtatggt gttgacagtt tgcagatata 450
 tattcgataa atcagtgtac ttgacagtgt tatctgtcac ttattt 496

<210> 349
 <211> 91
 <212> PRT
 <213> Homo sapiens

<400> 349
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 Leu Gly Pro Ser Pro Glu Gln Arg Val Glu Ile Val Pro Arg Asp
 20 25 30
 Leu Arg Met Lys Asp Lys Phe Leu Lys His Leu Thr Gly Pro Leu
 35 40 45
 Tyr Phe Ser Pro Lys Cys Ser Lys His Phe His Arg Leu Tyr His
 50 55 60
 Asn Thr Arg Asp Cys Thr Ile Pro Ala Tyr Tyr Lys Arg Cys Ala
 65 70 75
 Arg Leu Leu Thr Arg Leu Ala Val Ser Pro Val Cys Met Glu Asp
 80 85 90
 Lys

<210> 350
 <211> 1141
 <212> DNA
 <213> Homo sapiens

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 gggggctccc ctggtgctgg ccggcgagga ctgcctgtgg tacctggacc 200
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 <213> Homo sapiens

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 35 40 45
 Asn Cys Glu Phe Phe Thr Phe Cys Cys Gly Thr Cys Tyr His Arg
 50 55 60
 Tyr Cys Cys Arg Asp Leu Thr Leu Leu Ile Thr Glu Arg Gln Gln
 65 70 75
 Lys His Cys Leu Ala Phe Ser Pro Lys Thr Ile Ala Gly Ile Ala
 80 85 90
 Ser Ala Val Ile Leu Phe Val Ala Val Val Ala Thr Thr Ile Cys
 95 100 105
 Cys Phe Leu Cys Ser Cys Cys Tyr Leu Tyr Arg Arg Arg Gln Gln
 110 115 120
 Leu Gln Ser Pro Phe Glu Gly Gln Glu Ile Pro Met Thr Gly Ile
 125 130 135
 Pro Val Gln Pro Val Tyr Pro Tyr Pro Gln Asp Pro Lys Ala Gly
 140 145 150
 Pro Ala Pro Pro Gln Pro Gly Phe Met Tyr Pro Pro Ser Gly Pro
 155 160 165
 Ala Pro Gln Tyr Pro Leu Tyr Pro Ala Gly Pro Pro Val Tyr Asn
 170 175 180

Pro Ala Ala Pro Pro Pro Tyr Met Pro Pro Gln Pro Ser Tyr Pro
 185 190 195

Gly Ala

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 <211> 3226
 <212> DNA
 <213> Homo sapiens

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 tctcttaact gtgtccactc cttcatggtg tcagagcact gaagcatctc 200
 caaaacgtag tgatgggaca ccatttcctt ggaataaaaat acgacttcct 250
 gagtacgtca tcccagttca ttatgatctc ttgatccatg caaaccttac 300
 cacgctgacc ttctggggaa ccacgaaagt agaaatcaca gccagtcagc 350
 ccaccagcac catcatcctg catagtcacc acctgcagat atctagggcc 400
 accctcagga agggagctgg agagaggcta tcggaagaac ccctgcaggt 450
 cctggaacac cccctcagg agcaaattgc actgctggct cccgagcccc 500
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 ggaactgagg atactagcat caacacaatt tgaaccact gcagctagaa 650
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 ctgtgaagat gagcacctat ctggtggcct tcatcatttc agattttgag 850
 tctgtcagca agataaccaa gagtggagtc aaggtttctg tttatgctgt 900
 gccagacaag ataaatcaag cagattatgc actggatgct gcggtgactc 950
 ttctagaatt ttatgaggat tatttcagca taccgtatcc cctacccaaa 1000
 caagatcttg ctgctattcc cgactttcag tctggtgcta tggaaaactg 1050
 gggactgaca acatatagag aatctgctct gttgtttgat gcagaaaagt 1100
 cttctgcac aagtaagctt ggcacacag tgactgtggc ccatgaactg 1150
 gccaccagt ggtttgggaa cctggtcact atggaatggt ggaatgatct 1200
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 ggctattaca ttgtgcatta cgaggatgat ggatgggact ctttgactgg 1950
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 caacattttg ttgagtgtat tttcaaaacta gagatggctg ttttggctcc 3000
 aactggagat acttttttcc cttcaactca ttttttgact atccctgtga 3050
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 tcgctacat gtgttttggt catcacaggt gttgccctgc aacgtaaacc 3150
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 aaaaaaaaaa aaaaaaaaaa aaaaaa 3226

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 <211> 941
 <212> PRT
 <213> Homo sapiens

<400> 353
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 20 25 30
 Trp Cys Gln Ser Thr Glu Ala Ser Pro Lys Arg Ser Asp Gly Thr
 35 40 45
 Pro Phe Pro Trp Asn Lys Ile Arg Leu Pro Glu Tyr Val Ile Pro
 50 55 60
 Val His Tyr Asp Leu Leu Ile His Ala Asn Leu Thr Thr Leu Thr
 65 70 75
 Phe Trp Gly Thr Thr Lys Val Glu Ile Thr Ala Ser Gln Pro Thr
 80 85 90
 Ser Thr Ile Ile Leu His Ser His His Leu Gln Ile Ser Arg Ala
 95 100 105
 Thr Leu Arg Lys Gly Ala Gly Glu Arg Leu Ser Glu Glu Pro Leu
 110 115 120
 Gln Val Leu Glu His Pro Pro Gln Glu Gln Ile Ala Leu Leu Ala
 125 130 135
 Pro Glu Pro Leu Leu Val Gly Leu Pro Tyr Thr Val Val Ile His
 140 145 150
 Tyr Ala Gly Asn Leu Ser Glu Thr Phe His Gly Phe Tyr Lys Ser
 155 160 165
 Thr Tyr Arg Thr Lys Glu Gly Glu Leu Arg Ile Leu Ala Ser Thr
 170 175 180
 Gln Phe Glu Pro Thr Ala Ala Arg Met Ala Phe Pro Cys Phe Asp
 185 190 195
 Glu Pro Ala Phe Lys Ala Ser Phe Ser Ile Lys Ile Arg Arg Glu
 200 205 210
 Pro Arg His Leu Ala Ile Ser Asn Met Pro Leu Val Lys Ser Val

| | | |
|-------------------------------------|-------------------------|-----|
| 215 | 220 | 225 |
| Thr Val Ala Glu Gly Leu Ile Glu Asp | His Phe Asp Val Thr Val | |
| 230 | 235 | 240 |
| Lys Met Ser Thr Tyr Leu Val Ala Phe | Ile Ile Ser Asp Phe Glu | |
| 245 | 250 | 255 |
| Ser Val Ser Lys Ile Thr Lys Ser Gly | Val Lys Val Ser Val Tyr | |
| 260 | 265 | 270 |
| Ala Val Pro Asp Lys Ile Asn Gln Ala | Asp Tyr Ala Leu Asp Ala | |
| 275 | 280 | 285 |
| Ala Val Thr Leu Leu Glu Phe Tyr Glu | Asp Tyr Phe Ser Ile Pro | |
| 290 | 295 | 300 |
| Tyr Pro Leu Pro Lys Gln Asp Leu Ala | Ala Ile Pro Asp Phe Gln | |
| 305 | 310 | 315 |
| Ser Gly Ala Met Glu Asn Trp Gly Leu | Thr Thr Tyr Arg Glu Ser | |
| 320 | 325 | 330 |
| Ala Leu Leu Phe Asp Ala Glu Lys Ser | Ser Ala Ser Ser Lys Leu | |
| 335 | 340 | 345 |
| Gly Ile Thr Val Thr Val Ala His Glu | Leu Ala His Gln Trp Phe | |
| 350 | 355 | 360 |
| Gly Asn Leu Val Thr Met Glu Trp Trp | Asn Asp Leu Trp Leu Asn | |
| 365 | 370 | 375 |
| Glu Gly Phe Ala Lys Phe Met Glu Phe | Val Ser Val Ser Val Thr | |
| 380 | 385 | 390 |
| His Pro Glu Leu Lys Val Gly Asp Tyr | Phe Phe Gly Lys Cys Phe | |
| 395 | 400 | 405 |
| Asp Ala Met Glu Val Asp Ala Leu Asn | Ser Ser His Pro Val Ser | |
| 410 | 415 | 420 |
| Thr Pro Val Glu Asn Pro Ala Gln Ile | Arg Glu Met Phe Asp Asp | |
| 425 | 430 | 435 |
| Val Ser Tyr Asp Lys Gly Ala Cys Ile | Leu Asn Met Leu Arg Glu | |
| 440 | 445 | 450 |
| Tyr Leu Ser Ala Asp Ala Phe Lys Ser | Gly Ile Val Gln Tyr Leu | |
| 455 | 460 | 465 |
| Gln Lys His Ser Tyr Lys Asn Thr Lys | Asn Glu Asp Leu Trp Asp | |
| 470 | 475 | 480 |
| Ser Met Ala Ser Ile Cys Pro Thr Asp | Gly Val Lys Gly Met Asp | |
| 485 | 490 | 495 |
| Gly Phe Cys Ser Arg Ser Gln His Ser | Ser Ser Ser Ser His Trp | |
| 500 | 505 | 510 |
| His Gln Glu Gly Val Asp Val Lys Thr | Met Met Asn Thr Trp Thr | |
| 515 | 520 | 525 |
| Leu Gln Arg Gly Phe Pro Leu Ile Thr | Ile Thr Val Arg Gly Arg | |

| 530 | | | | | | | | | | 535 | | | | | 540 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Asn | Val | His | Met | Lys | Gln | Glu | His | Tyr | Met | Lys | Gly | Ser | Asp | Gly | | | | | |
| | | | | 545 | | | | | 550 | | | | | 555 | | | | | |
| Ala | Pro | Asp | Thr | Gly | Tyr | Leu | Trp | His | Val | Pro | Leu | Thr | Phe | Ile | | | | | |
| | | | | 560 | | | | | 565 | | | | | 570 | | | | | |
| Thr | Ser | Lys | Ser | Asn | Met | Val | His | Arg | Phe | Leu | Leu | Lys | Thr | Lys | | | | | |
| | | | | 575 | | | | | 580 | | | | | 585 | | | | | |
| Thr | Asp | Val | Leu | Ile | Leu | Pro | Glu | Glu | Val | Glu | Trp | Ile | Lys | Phe | | | | | |
| | | | | 590 | | | | | 595 | | | | | 600 | | | | | |
| Asn | Val | Gly | Met | Asn | Gly | Tyr | Tyr | Ile | Val | His | Tyr | Glu | Asp | Asp | | | | | |
| | | | | 605 | | | | | 610 | | | | | 615 | | | | | |
| Gly | Trp | Asp | Ser | Leu | Thr | Gly | Leu | Leu | Lys | Gly | Thr | His | Thr | Ala | | | | | |
| | | | | 620 | | | | | 625 | | | | | 630 | | | | | |
| Val | Ser | Ser | Asn | Asp | Arg | Ala | Ser | Leu | Ile | Asn | Asn | Ala | Phe | Gln | | | | | |
| | | | | 635 | | | | | 640 | | | | | 645 | | | | | |
| Leu | Val | Ser | Ile | Gly | Lys | Leu | Ser | Ile | Glu | Lys | Ala | Leu | Asp | Leu | | | | | |
| | | | | 650 | | | | | 655 | | | | | 660 | | | | | |
| Ser | Leu | Tyr | Leu | Lys | His | Glu | Thr | Glu | Ile | Met | Pro | Val | Phe | Gln | | | | | |
| | | | | 665 | | | | | 670 | | | | | 675 | | | | | |
| Gly | Leu | Asn | Glu | Leu | Ile | Pro | Met | Tyr | Lys | Leu | Met | Glu | Lys | Arg | | | | | |
| | | | | 680 | | | | | 685 | | | | | 690 | | | | | |
| Asp | Met | Asn | Glu | Val | Glu | Thr | Gln | Phe | Lys | Ala | Phe | Leu | Ile | Arg | | | | | |
| | | | | 695 | | | | | 700 | | | | | 705 | | | | | |
| Leu | Leu | Arg | Asp | Leu | Ile | Asp | Lys | Gln | Thr | Trp | Thr | Asp | Glu | Gly | | | | | |
| | | | | 710 | | | | | 715 | | | | | 720 | | | | | |
| Ser | Val | Ser | Glu | Gln | Met | Leu | Arg | Ser | Glu | Leu | Leu | Leu | Leu | Ala | | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | |
| Cys | Val | His | Asn | Tyr | Gln | Pro | Cys | Val | Gln | Arg | Ala | Glu | Gly | Tyr | | | | | |
| | | | | 740 | | | | | 745 | | | | | 750 | | | | | |
| Phe | Arg | Lys | Trp | Lys | Glu | Ser | Asn | Gly | Asn | Leu | Ser | Leu | Pro | Val | | | | | |
| | | | | 755 | | | | | 760 | | | | | 765 | | | | | |
| Asp | Val | Thr | Leu | Ala | Val | Phe | Ala | Val | Gly | Ala | Gln | Ser | Thr | Glu | | | | | |
| | | | | 770 | | | | | 775 | | | | | 780 | | | | | |
| Gly | Trp | Asp | Phe | Leu | Tyr | Ser | Lys | Tyr | Gln | Phe | Ser | Leu | Ser | Ser | | | | | |
| | | | | 785 | | | | | 790 | | | | | 795 | | | | | |
| Thr | Glu | Lys | Ser | Gln | Ile | Glu | Phe | Ala | Leu | Cys | Arg | Thr | Gln | Asn | | | | | |
| | | | | 800 | | | | | 805 | | | | | 810 | | | | | |
| Lys | Glu | Lys | Leu | Gln | Trp | Leu | Leu | Asp | Glu | Ser | Phe | Lys | Gly | Asp | | | | | |
| | | | | 815 | | | | | 820 | | | | | 825 | | | | | |
| Lys | Ile | Lys | Thr | Gln | Glu | Phe | Pro | Gln | Ile | Leu | Thr | Leu | Ile | Gly | | | | | |
| | | | | 830 | | | | | 835 | | | | | 840 | | | | | |
| Arg | Asn | Pro | Val | Gly | Tyr | Pro | Leu | Ala | Trp | Gln | Phe | Leu | Arg | Lys | | | | | |

| | | | | | |
|-----------------|---------------------|---------------------|-----|--|-----|
| | 845 | | 850 | | 855 |
| Asn Trp Asn Lys | Leu Val Gln Lys Phe | Glu Leu Gly Ser Ser | Ser | | |
| | 860 | 865 | 870 | | |
| Ile Ala His Met | Val Met Gly Thr Thr | Asn Gln Phe Ser Thr | Arg | | |
| | 875 | 880 | 885 | | |
| Thr Arg Leu Glu | Glu Val Lys Gly Phe | Phe Ser Ser Leu Lys | Glu | | |
| | 890 | 895 | 900 | | |
| Asn Gly Ser Gln | Leu Arg Cys Val Gln | Gln Thr Ile Glu Thr | Ile | | |
| | 905 | 910 | 915 | | |
| Glu Glu Asn Ile | Gly Trp Met Asp Lys | Asn Phe Asp Lys Ile | Arg | | |
| | 920 | 925 | 930 | | |
| Val Trp Leu Gln | Ser Glu Lys Leu Glu | Arg Met | | | |
| | 935 | 940 | | | |

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 <211> 1587
 <212> DNA
 <213> Homo sapiens

<400> 354
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 gaacaccagc tgcgacagcg gcttgggggtg ccaggacacg ttgatgctca 200
 ttgagagcgg accccaagtg agcctggtgc tctccaaggg ctgcacggag 250
 gccaaaggacc aggagccccg cgtoactgag caccggatgg gccccggcct 300
 ctccctgata tcctacacct tcgtgtgccg ccaggaggac ttctgcaaca 350
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 ggatccttga ggtgcccagt ctgcttgtct atggaaggct gtctggaggg 450
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 tcctcaggct caggggagga ggcattctct ccaatctgag agtccaggga 550
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 gcccgtgggt atgactgaga actgcaatag gaaagatttt ctgacctgtc 650
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 aatggccttg gacaccagat tctttcccat tctgtccatg aatcatcttc 1450
 cccacacaca atcattcata tctactcacc taacagcaac actggggaga 1500
 gcctggagca tccggacttg ccctatggga gaggggacgc tggaggagtg 1550
 gctgcatgta tctgataata cagaccctgt cctttca 1587

<210> 355
 <211> 437
 <212> PRT
 <213> Homo sapiens

<400> 355
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 1 5 10 15
 Leu Pro Gly Val Gln Ala Leu Leu Cys Gln Phe Gly Thr Val Gln
 20 25 30
 His Val Trp Lys Val Ser Asp Leu Pro Arg Gln Trp Thr Pro Lys
 35 40 45
 Asn Thr Ser Cys Asp Ser Gly Leu Gly Cys Gln Asp Thr Leu Met
 50 55 60
 Leu Ile Glu Ser Gly Pro Gln Val Ser Leu Val Leu Ser Lys Gly
 65 70 75
 Cys Thr Glu Ala Lys Asp Gln Glu Pro Arg Val Thr Glu His Arg
 80 85 90
 Met Gly Pro Gly Leu Ser Leu Ile Ser Tyr Thr Phe Val Cys Arg
 95 100 105
 Gln Glu Asp Phe Cys Asn Asn Leu Val Asn Ser Leu Pro Leu Trp
 110 115 120
 Ala Pro Gln Pro Pro Ala Asp Pro Gly Ser Leu Arg Cys Pro Val
 125 130 135
 Cys Leu Ser Met Glu Gly Cys Leu Glu Gly Thr Thr Glu Glu Ile
 140 145 150
 Cys Pro Lys Gly Thr Thr His Cys Tyr Asp Gly Leu Leu Arg Leu

| | 155 | 160 | 165 |
|-----------------|---------------------|---------------------|-----|
| Arg Gly Gly Gly | Ile Phe Ser Asn Leu | Arg Val Gln Gly Cys | Met |
| | 170 | 175 | 180 |
| Pro Gln Pro Gly | Cys Asn Leu Leu Asn | Gly Thr Gln Glu Ile | Gly |
| | 185 | 190 | 195 |
| Pro Val Gly Met | Thr Glu Asn Cys Asn | Arg Lys Asp Phe Leu | Thr |
| | 200 | 205 | 210 |
| Cys His Arg Gly | Thr Thr Ile Met Thr | His Gly Asn Leu Ala | Gln |
| | 215 | 220 | 225 |
| Glu Pro Thr Asp | Trp Thr Thr Ser Asn | Thr Glu Met Cys Glu | Val |
| | 230 | 235 | 240 |
| Gly Gln Val Cys | Gln Glu Thr Leu Leu | Leu Ile Asp Val Gly | Leu |
| | 245 | 250 | 255 |
| Thr Ser Thr Leu | Val Gly Thr Lys Gly | Cys Ser Thr Val Gly | Ala |
| | 260 | 265 | 270 |
| Gln Asn Ser Gln | Lys Thr Thr Ile His | Ser Ala Pro Pro Gly | Val |
| | 275 | 280 | 285 |
| Leu Val Ala Ser | Tyr Thr His Phe Cys | Ser Ser Asp Leu Cys | Asn |
| | 290 | 295 | 300 |
| Ser Ala Ser Ser | Ser Ser Val Leu Leu | Asn Ser Leu Pro Pro | Gln |
| | 305 | 310 | 315 |
| Ala Ala Pro Val | Pro Gly Asp Arg Gln | Cys Pro Thr Cys Val | Gln |
| | 320 | 325 | 330 |
| Pro Leu Gly Thr | Cys Ser Ser Gly Ser | Pro Arg Met Thr Cys | Pro |
| | 335 | 340 | 345 |
| Arg Gly Ala Thr | His Cys Tyr Asp Gly | Tyr Ile His Leu Ser | Gly |
| | 350 | 355 | 360 |
| Gly Gly Leu Ser | Thr Lys Met Ser Ile | Gln Gly Cys Val Ala | Gln |
| | 365 | 370 | 375 |
| Pro Ser Ser Phe | Leu Leu Asn His Thr | Arg Gln Ile Gly Ile | Phe |
| | 380 | 385 | 390 |
| Ser Ala Arg Glu | Lys Arg Asp Val Gln | Pro Pro Ala Ser Gln | His |
| | 395 | 400 | 405 |
| Glu Gly Gly Gly | Ala Glu Gly Leu Glu | Ser Leu Thr Trp Gly | Val |
| | 410 | 415 | 420 |
| Gly Leu Ala Leu | Ala Pro Ala Leu Trp | Trp Gly Val Val Cys | Pro |
| | 425 | 430 | 435 |

Ser Cys

<210> 356
 <211> 1238
 <212> DNA
 <213> Homo sapiens

<400> 356
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 tcagcctggc cttcctgtca ctgctgccat ctggacatcc tcagccggct 150
 ggcgatgacg cctgctctgt gcagatcctc gtccctggcc tcaaagggga 200
 tgccgggagag aaggagagaca aaggcgcccc cggacggcct ggaagagtcg 250
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 catgtgagtg cagccagctg cgcaaggcca tcggggagat ggacaaccag 450
 gtctctcagc tgaccagcga gctcaagttc atcaagaatg ctgtcgccgg 500
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 acctgtattg tagccccaat gtcattatgt aattattacc cagaattgct 1150
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 tagtgagta gttaagtcca aaaaaaaaaa aaaaaaaaa 1238

<210> 357
 <211> 271
 <212> PRT
 <213> Homo sapiens

<400> 357
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 Phe Leu Ser Leu Leu Pro Ser Gly His Pro Gln Pro Ala Gly Asp
 20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Asp | Ala | Cys | Ser | Val | Gln | Ile | Leu | Val | Pro | Gly | Leu | Lys | Gly | Asp | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Ala | Gly | Glu | Lys | Gly | Asp | Lys | Gly | Ala | Pro | Gly | Arg | Pro | Gly | Arg | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Val | Gly | Pro | Thr | Gly | Glu | Lys | Gly | Asp | Met | Gly | Asp | Lys | Gly | Gln | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Lys | Gly | Ser | Val | Gly | Arg | His | Gly | Lys | Ile | Gly | Pro | Ile | Gly | Ser | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Lys | Gly | Glu | Lys | Gly | Asp | Ser | Gly | Asp | Ile | Gly | Pro | Pro | Gly | Pro | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Asn | Gly | Glu | Pro | Gly | Leu | Pro | Cys | Glu | Cys | Ser | Gln | Leu | Arg | Lys | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Ala | Ile | Gly | Glu | Met | Asp | Asn | Gln | Val | Ser | Gln | Leu | Thr | Ser | Glu | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Leu | Lys | Phe | Ile | Lys | Asn | Ala | Val | Ala | Gly | Val | Arg | Glu | Thr | Glu | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Ser | Lys | Ile | Tyr | Leu | Leu | Val | Lys | Glu | Glu | Lys | Arg | Tyr | Ala | Asp | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Ala | Gln | Leu | Ser | Cys | Gln | Gly | Arg | Gly | Gly | Thr | Leu | Ser | Met | Pro | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Lys | Asp | Glu | Ala | Ala | Asn | Gly | Leu | Met | Ala | Ala | Tyr | Leu | Ala | Gln | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Ala | Gly | Leu | Ala | Arg | Val | Phe | Ile | Gly | Ile | Asn | Asp | Leu | Glu | Lys | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Glu | Gly | Ala | Phe | Val | Tyr | Ser | Asp | His | Ser | Pro | Met | Arg | Thr | Phe | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Asn | Lys | Trp | Arg | Ser | Gly | Glu | Pro | Asn | Asn | Ala | Tyr | Asp | Glu | Glu | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Asp | Cys | Val | Glu | Met | Val | Ala | Ser | Gly | Gly | Trp | Asn | Asp | Val | Ala | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Cys | His | Thr | Thr | Met | Tyr | Phe | Met | Cys | Glu | Phe | Asp | Lys | Glu | Asn | |
| | | | | 260 | | | | | 265 | | | | | 270 | |

Met

<210> 358

<211> 972

<212> DNA

<213> Homo sapiens

<400> 358

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gttccttgat cctgccagac caccagccc ccggcacaga gctgctccac 150

aggcaccatg aggatcatgc tgctattcac agccatcctg gccttcagcc 200
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cctggcgggg gccgcagcaa gagggatcca gatctctacc agctgctcca 300
gagactcttc aaaagccact catctctgga gggattgctc aaagccctga 350
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cagagacott tataagactc tcctacggat gtgaatcaag agaacgtccc 600
cagctttggc atcctcaagt atccccgag agcagaatag gtactccact 650
tccggactcc tggactgcat taggaagacc tctttccctg tcccaatccc 700
caggtgcgca cgtctctgtt accctttctc ttccctgttc ttgtaacatt 750
cttgtgcttt gactccttct ccatcttttc tacctgaccc tgggtgtggaa 800
actgcatagt gaatatcccc aaccccaatg ggcattgact gtagaatacc 850
ctagagtcc tgtagtgtcc tacattaata atataatgtc tctctctatt 900
cctcaacaat aaaggatttt tgcataatgaa aaaaaaaaaa aaaaaaaaaa 950
aaaaaaaaaa aaaaaaaaaa aa 972

<210> 359

<211> 135

<212> PRT

<213> Homo sapiens

<400> 359

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Arg | Ile | Met | Leu | Leu | Phe | Thr | Ala | Ile | Leu | Ala | Phe | Ser | Leu | 1 | 5 | 10 | 15 |
| Ala | Gln | Ser | Phe | Gly | Ala | Val | Cys | Lys | Glu | Pro | Gln | Glu | Glu | Val | 20 | 25 | 30 | |
| Val | Pro | Gly | Gly | Gly | Arg | Ser | Lys | Arg | Asp | Pro | Asp | Leu | Tyr | Gln | 35 | 40 | 45 | |
| Leu | Leu | Gln | Arg | Leu | Phe | Lys | Ser | His | Ser | Ser | Leu | Glu | Gly | Leu | 50 | 55 | 60 | |
| Leu | Lys | Ala | Leu | Ser | Gln | Ala | Ser | Thr | Asp | Pro | Lys | Glu | Ser | Thr | 65 | 70 | 75 | |
| Ser | Pro | Glu | Lys | Arg | Asp | Met | His | Asp | Phe | Phe | Val | Gly | Leu | Met | 80 | 85 | 90 | |
| Gly | Lys | Arg | Ser | Val | Gln | Pro | Glu | Gly | Lys | Thr | Gly | Pro | Phe | Leu | 95 | 100 | 105 | |
| Pro | Ser | Val | Arg | Val | Pro | Arg | Pro | Leu | His | Pro | Asn | Gln | Leu | Gly | 110 | 115 | 120 | |

Ser Thr Gly Lys Ser Ser Leu Gly Thr Glu Glu Gln Arg Pro Leu
125 130 135

<210> 360
<211> 1738
<212> DNA
<213> Homo sapiens

<400> 360
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gagacgccag cgagctggtg attggagccc tgcggagagc tcaagcgccc 150
agctctgccc caggagccca ggctgccccg tgagtcccat agttgctgca 200
ggagtggagc catgagctgc gtctgggtg gtgtcatccc cttggggctg 250
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cttagaggag ctgctcagca aataccagca caacgagtct cactcccggg 350
tcgcagagc catccccagg gaggacaagg aggagatcct catgctgcac 400
aacaagcttc ggggccagggt gcagcctcag gcctccaaca tggagtacat 450
ggtgagcgcc ggctccggcc gcagaggctg gcaccggggg tggggcctgg 500
gccaccagcc tgctctgttc ccagccagc tctgttcccc agccagtgcg 550
tgtgatggct ggctcagggt ctctctggc aggggaggat cccggctctg 600
ttctgttttg tttgtttgtt ttgagacagg gtctcactct gccactgacg 650
ctggagtga atggcacaat cgtcatgccc tgaaacctta gactcccggg 700
gttaagcgat cctgcttcag cctcccaagt agctggaact acaggcatgc 750
accatggtgc ccagctagat tttaaatatt ttgtggagat gggggtcttg 800
ctacgttgcc caggctggtc ttgaactcct aggctcaagc aatcctcctg 850
cctcagcctc tcaaagtgtc aggattatag gcatgagtca ccctgtctgg 900
ctctggctct gttcttaaca ttctgcaaaa acaacacacg tgggttcctt 950
gtgcagagcc tgctcgttg ccttcatgtc actcttggtg gctccactgg 1000
gaacacagct ctacgcttt cccacctgga ggcagagtgg ggaggggccc 1050
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accaccctga cttctcctta gcccggtgta gcctcacttt ccacttgag 1150
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agggcccggc acagactgac ctgcctcccc aaccctagg ctttgctaac 1250
cgggaaagga gctaacggtg acagaagaca gccaaggta accctcccg 1300
gtgattgtga tgggtgttcc aggtgtggtt gggcgatgct gctacttgac 1350

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cccaagctcc agtgtgga aa ctcccttcc ggctggttt ccagaactac 1400
agaggaatgg accacagtct tccagggctc ctccctcgtc accaaccggg 1450
agcctccacc ttggccatcc gtcagctatg aatggctttt taaacaaacc 1500
cacgtcccag cctgggtaac atggtaaagc cccgtctcta caaaaaaatc 1550
caagttagcc gggcatgggtg gtgcgcacct gtagtcccag ctgcagtggg 1600
actgaggtgg aggtggaggt ggggggtggg agctgaggaa ggaggatcgc 1650
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<210> 361
<211> 159
<212> PRT
<213> Homo sapiens
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|----------|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|--|
| <400> | 361 | | | | | | | | | | | | | | |
| Met 1 | Ser | Cys | Val | Leu 5 | Gly | Gly | Val | Ile | Pro 10 | Leu | Gly | Leu | Leu | Phe 15 | |
| Leu | Val | Cys | Gly | Ser 20 | Gln | Gly | Tyr | Leu | Leu 25 | Pro | Asn | Val | Thr | Leu 30 | |
| Leu | Glu | Glu | Leu | Leu 35 | Ser | Lys | Tyr | Gln | His 40 | Asn | Glu | Ser | His | Ser 45 | |
| Arg | Val | Arg | Arg | Ala 50 | Ile | Pro | Arg | Glu | Asp 55 | Lys | Glu | Glu | Ile | Leu 60 | |
| Met | Leu | His | Asn | Lys 65 | Leu | Arg | Gly | Gln | Val 70 | Gln | Pro | Gln | Ala | Ser 75 | |
| Asn | Met | Glu | Tyr | Met 80 | Val | Ser | Ala | Gly | Ser 85 | Gly | Arg | Arg | Gly | Trp 90 | |
| His | Arg | Gly | Trp | Gly 95 | Leu | Gly | His | Gln | Pro 100 | Ala | Leu | Phe | Pro | Ser 105 | |
| Gln | Leu | Cys | Ser | Pro 110 | Ala | Ser | Ala | Cys | Asp 115 | Gly | Trp | Leu | Arg | Val 120 | |
| Ser | Ser | Gly | Arg | Gly 125 | Gly | Ser | Arg | Leu | Cys 130 | Ser | Val | Leu | Phe | Val 135 | |
| Cys | Phe | Glu | Thr | Gly 140 | Ser | His | Ser | Ala | Thr 145 | Asp | Ala | Gly | Val | Gln 150 | |
| Trp | His | Asn | Arg | His 155 | Ala | Leu | Lys | Pro | | | | | | | |

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<210> 362
<211> 422
<212> DNA
<213> Homo sapiens
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<400> 362
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gcagctcaca tggaacaggg ccgggtatga ctttgcaact gaagctgaag 150
gagtcttttc tgacaaattc ctctatgag tccagcttcc tggaattgct 200
tgaaaagctc tgcctcctcc tccatctccc ttcagggacc agcgtcaccc 250
tccaccatgc aagatctcaa caccatgttg tctgcaacac atgacagcca 300
ttgaagcctg tgtccttctt ggcccgggct tttgggccgg ggatgcagga 350
ggcaggcccc gaccctgtct ttcagcaggc cccaccctc ctgagtggca 400
ataaataaaa ttcggtatgc tg 422

<210> 363
<211> 78
<212> PRT
<213> Homo sapiens

<400> 363
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Ser Ser His Gly Thr Gly Pro Gly Met Thr Leu Gln Leu Lys Leu
20 25 30
Lys Glu Ser Phe Leu Thr Asn Ser Ser Tyr Glu Ser Ser Phe Leu
35 40 45
Glu Leu Leu Glu Lys Leu Cys Leu Leu Leu His Leu Pro Ser Gly
50 55 60
Thr Ser Val Thr Leu His His Ala Arg Ser Gln His His Val Val
65 70 75
Cys Asn Thr

<210> 364
<211> 826
<212> DNA
<213> Homo sapiens

<400> 364
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cctcttacgc atatgttaca aattatctgg agttcctaata caatgcagag 300
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 gtgtggagt tttgcacatc attgaattct cgtttcacct ttgtgaaaca 2100

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ser | Trp | Gln | Gly | Thr | Gly | Gln | Val | Ile | Tyr | Lys | Gly | Phe | Leu |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Phe | Phe | His | Asn | Gln | Ala | Thr | Ser | Asn | Glu | Ile | Ile | Lys | Tyr | Asn |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Gln | Lys | Arg | Thr | Val | Glu | Asp | Arg | Met | Leu | Leu | Pro | Gly | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Val | Gly | Arg | Ala | Leu | Val | Tyr | Gln | His | Ser | Pro | Ser | Thr | Tyr | Ile |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Asp | Leu | Ala | Val | Asp | Glu | His | Gly | Leu | Trp | Ala | Ile | His | Ser | Gly |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Pro | Gly | Thr | His | Ser | His | Leu | Val | Leu | Thr | Lys | Ile | Glu | Pro | Gly |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Thr | Leu | Gly | Val | Glu | His | Ser | Trp | Asp | Thr | Pro | Cys | Arg | Ser | Gln |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Asp | Ala | Glu | Ala | Ser | Phe | Leu | Leu | Cys | Gly | Val | Leu | Tyr | Val | Val |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Tyr | Ser | Thr | Gly | Gly | Gln | Gly | Pro | His | Arg | Ile | Thr | Cys | Ile | Tyr |
| | | | | 335 | | | | | 340 | | | | | 345 |
| Asp | Pro | Leu | Gly | Thr | Ile | Ser | Glu | Glu | Asp | Leu | Pro | Asn | Leu | Phe |
| | | | | 350 | | | | | 355 | | | | | 360 |
| Phe | Pro | Lys | Arg | Pro | Arg | Ser | His | Ser | Met | Ile | His | Tyr | Asn | Pro |
| | | | | 365 | | | | | 370 | | | | | 375 |
| Arg | Asp | Lys | Gln | Leu | Tyr | Ala | Trp | Asn | Glu | Gly | Asn | Gln | Ile | Ile |
| | | | | 380 | | | | | 385 | | | | | 390 |
| Tyr | Lys | Leu | Gln | Thr | Lys | Arg | Lys | Leu | Pro | Leu | Lys | | | |
| | | | | 395 | | | | | 400 | | | | | |

<210> 368
 <211> 2281
 <212> DNA
 <213> Homo sapiens

<400> 368
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 ctggccctga tggcgacggc ggcggtagcg cgggggtggc tgcgcgcggg 150
 ggaggagagg agcggccggc ccgcctgccaaaagcaaataat ggatttccac 200
 ctgacaaatc ttcgggatcc aagaagcaga aacaatatca gcggattcgg 250
 aaggagaagc ctcaacaaca caacttcacc caccgcctcc tggctgcagc 300
 tctgaagagc cacagcggga acatatcttg catggacttt agcagcaatg 350
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 accaaggact tcctgcagcg agagcaccgc agcatgagag ccaacgtgga 450

gctggaccac gccaccctgg tgcgcttcag ccctgactgc agagccttca 500
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 atgtgaaggt ttgggaagtc tgctttggaa agaaggggga gttccaggag 850
 gtggtgagag ccttcgaact aaagggccac tccgcggctg tgcaactcgtt 900
 tgctttctcc aacgactcac ggaggatggc ttctgtctcc aaggatggta 950
 catggaaact gtgggacaca gatgtggaat acaagaagaa gcaggacccc 1000
 tacttgctga agacaggccg ctttgaagag gcggcggggtg ccgcgcctgt 1050
 ccgcctggcc ctctcccca acgcccaggt cttggccttg gccagtggca 1100
 gtagtattca tctctacaat acccggcggg gcgagaagga ggagtgcctt 1150
 gagcggttcc atggcgagtg tatcgccaac ttgtcctttg acatcactgg 1200
 ccgctttctg gcctcctgtg gggaccgggc ggtgcggctg tttcacaaca 1250
 ctctggcca ccgagccatg gtggaggaga tgcagggcca cctgaagcgg 1300
 gcctccaacg agagcaccg ccagaggctg cagcagcagc tgaccacaggc 1350
 ccaagagacc ctgaagagcc tgggtgccct gaagaagtga ctctgggagg 1400
 gcccggcgca gaggattgag gaggaggat ctggcctcct catggcactg 1450
 ctgccatctt tcctccagg tggaagcctt tcagaaggag tctcctggtt 1500
 ttcttactgg tggcctgct tcttccatt gaaactactc ttgtctactt 1550
 aggtctctct cttcttgctg gctgtgactc ctccctgact agtggccaag 1600
 gtgcttttct tcctccagg ccagtggtt ggaatctgtc cccacctggc 1650
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 agaacaacct agagaacacc tgagtactaa gcagcagttt tgcaaggatg 1800
 ggagactggg atagcttccc atcacagaac tgtgttccat caaaaagaca 1850
 ctaagggatt tccttctggg cctcagttct atttgtaaga tggagaataa 1900
 tcctctctgt gaactccttg caaagatgat atgaggctaa gagaatatca 1950
 agtccccagg tctggaagaa aagtagaaaa gagtagtact attgtccaat 2000
 gtcataaag tggtaaaagt gggaaaccagt gtgctttgaa accaaattag 2050

aaacacattc cttggaagg caaagttttc tgggacttga tcatacattt 2100
 tatatggttg ggactttctct cttcgggaga tgatatcttg ttttaaggaga 2150
 cctctttttca gttcatcaag ttcatcagat atttgagtgc ccactctgtg 2200
 cccaaataaa tatgagctgg ggattaaaaa aaaaaaaaaa aaaaaaaaaa 2250
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 2281

<210> 369
 <211> 447
 <212> PRT
 <213> Homo sapiens

<400> 369
 Met Glu Leu Ser Gln Met Ser Glu Leu Met Gly Leu Ser Val Leu
 1 5 10 15
 Leu Gly Leu Leu Ala Leu Met Ala Thr Ala Ala Val Ala Arg Gly
 20 25 30
 Trp Leu Arg Ala Gly Glu Glu Arg Ser Gly Arg Pro Ala Cys Gln
 35 40 45
 Lys Ala Asn Gly Phe Pro Pro Asp Lys Ser Ser Gly Ser Lys Lys
 50 55 60
 Gln Lys Gln Tyr Gln Arg Ile Arg Lys Glu Lys Pro Gln Gln His
 65 70 75
 Asn Phe Thr His Arg Leu Leu Ala Ala Ala Leu Lys Ser His Ser
 80 85 90
 Gly Asn Ile Ser Cys Met Asp Phe Ser Ser Asn Gly Lys Tyr Leu
 95 100 105
 Ala Thr Cys Ala Asp Asp Arg Thr Ile Arg Ile Trp Ser Thr Lys
 110 115 120
 Asp Phe Leu Gln Arg Glu His Arg Ser Met Arg Ala Asn Val Glu
 125 130 135
 Leu Asp His Ala Thr Leu Val Arg Phe Ser Pro Asp Cys Arg Ala
 140 145 150
 Phe Ile Val Trp Leu Ala Asn Gly Asp Thr Leu Arg Val Phe Lys
 155 160 165
 Met Thr Lys Arg Glu Asp Gly Gly Tyr Thr Phe Thr Ala Thr Pro
 170 175 180
 Glu Asp Phe Pro Lys Lys His Lys Ala Pro Val Ile Asp Ile Gly
 185 190 195
 Ile Ala Asn Thr Gly Lys Phe Ile Met Thr Ala Ser Ser Asp Thr
 200 205 210
 Thr Val Leu Ile Trp Ser Leu Lys Gly Gln Val Leu Ser Thr Ile
 215 220 225
 Asn Thr Asn Gln Met Asn Asn Thr His Ala Ala Val Ser Pro Cys
 230 235 240

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Arg | Phe | Val | Ala | Ser | Cys | Gly | Phe | Thr | Pro | Asp | Val | Lys | Val | 245 | 250 | 255 |
| Trp | Glu | Val | Cys | Phe | Gly | Lys | Lys | Gly | Glu | Phe | Gln | Glu | Val | Val | 260 | 265 | 270 |
| Arg | Ala | Phe | Glu | Leu | Lys | Gly | His | Ser | Ala | Ala | Val | His | Ser | Phe | 275 | 280 | 285 |
| Ala | Phe | Ser | Asn | Asp | Ser | Arg | Arg | Met | Ala | Ser | Val | Ser | Lys | Asp | 290 | 295 | 300 |
| Gly | Thr | Trp | Lys | Leu | Trp | Asp | Thr | Asp | Val | Glu | Tyr | Lys | Lys | Lys | 305 | 310 | 315 |
| Gln | Asp | Pro | Tyr | Leu | Leu | Lys | Thr | Gly | Arg | Phe | Glu | Glu | Ala | Ala | 320 | 325 | 330 |
| Gly | Ala | Ala | Pro | Cys | Arg | Leu | Ala | Leu | Ser | Pro | Asn | Ala | Gln | Val | 335 | 340 | 345 |
| Leu | Ala | Leu | Ala | Ser | Gly | Ser | Ser | Ile | His | Leu | Tyr | Asn | Thr | Arg | 350 | 355 | 360 |
| Arg | Gly | Glu | Lys | Glu | Glu | Cys | Phe | Glu | Arg | Val | His | Gly | Glu | Cys | 365 | 370 | 375 |
| Ile | Ala | Asn | Leu | Ser | Phe | Asp | Ile | Thr | Gly | Arg | Phe | Leu | Ala | Ser | 380 | 385 | 390 |
| Cys | Gly | Asp | Arg | Ala | Val | Arg | Leu | Phe | His | Asn | Thr | Pro | Gly | His | 395 | 400 | 405 |
| Arg | Ala | Met | Val | Glu | Glu | Met | Gln | Gly | His | Leu | Lys | Arg | Ala | Ser | 410 | 415 | 420 |
| Asn | Glu | Ser | Thr | Arg | Gln | Arg | Leu | Gln | Gln | Gln | Leu | Thr | Gln | Ala | 425 | 430 | 435 |
| Gln | Glu | Thr | Leu | Lys | Ser | Leu | Gly | Ala | Leu | Lys | Lys | | | | 440 | 445 | |

<210> 370
 <211> 1415
 <212> DNA
 <213> Homo sapiens

<400> 370
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 catctaagca ggcagtgttt tgccttcacc ccaagtgacc atgagagggtg 100
 ccacgcgagt ctcaatcatg ctctcctag taactgtgtc tgactgtgct 150
 gtgatcacag gggcctgtga gcgggatgtc cagtgtgggg caggcacctg 200
 ctgtgccatc agcctgtggc ttcgagggtc gcggatgtgc accccgctgg 250
 ggcgggaagg cgaggagtgc caccocggca gccacaaggt ccccttcttc 300
 aggaaacgca agcaccacac ctgtccttgc ttgcccaacc tgctgtgctc 350
 caggttcccg gacggcaggt accgctgctc catggacttg aagaacatca 400

atttttaggc gcttgccctgg tctcaggata cccaccatcc ttttcctgag 450
cacagcctgg atttttattt ctgccatgaa acccagctcc catgactctc 500
ccagtcacct cactgactac cctgatctct cttgtctagt acgcacatat 550
gcacacaggg agacatacct cccatcatga catgggtcccc aggctggcct 600
gaggatgtca cagcttgagg ctgtgggtgtg aaagggtggcc agcctgggtc 650
tcttcctcgc tcaggctgcc agagagggtgg taaatggcag aaaggacatt 700
ccccctcccc tccccagggtg acctgctctc tttcctgggc cctgccccctc 750
tccccacatg tatccctcgg tctgaattag acattcctgg gcacaggctc 800
ttgggtgcat tgctcagagt cccaggtcct ggcttgaccc tcaggccctt 850
cacgtgaggt ctgtgaggac caatttgtgg gtagttcatc ttccctcgat 900
tggttaactc cttagtttca gaccacagac tcaagattgg ctcttcccag 950
agggcagcag acagtcaccc caaggcaggt gtagggagcc cagggaggcc 1000
aatcagcccc ctgaagactc tgggtccagt cagcctgtgg cttgtggcct 1050
gtgacctgtg accttctgcc agaattgtca tgcctctgag gccccctctt 1100
accacacttt accagttaac cactgaagcc cccaattccc acagcttttc 1150
cattaaaatg caaatgggtg tggttcaatc taatctgata ttgacatatt 1200
agaaggcaat taggggtgtt ccttaaaca ctcctttcca aggatcagcc 1250
ctgagagcag gttgggtgact ttgaggaggg cagtcctctg tccagattgg 1300
gggtgggagca agggacaggg agcagggcag gggctgaaag gggcactgat 1350
tcagaccagg gaggcaacta cacaccaaca tgctggcttt agaataaaaag 1400
caccaactga aaaaa 1415

<210> 371
<211> 105
<212> PRT
<213> Homo sapiens

<400> 371
Met Arg Gly Ala Thr Arg Val Ser Ile Met Leu Leu Leu Val Thr
1 5 10 15
Val Ser Asp Cys Ala Val Ile Thr Gly Ala Cys Glu Arg Asp Val
20 25 30
Gln Cys Gly Ala Gly Thr Cys Cys Ala Ile Ser Leu Trp Leu Arg
35 40 45
Gly Leu Arg Met Cys Thr Pro Leu Gly Arg Glu Gly Glu Glu Cys
50 55 60
His Pro Gly Ser His Lys Val Pro Phe Phe Arg Lys Arg Lys His
65 70 75

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Thr | Cys | Pro | Cys | Leu | Pro | Asn | Leu | Leu | Cys | Ser | Arg | Phe | Pro |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Asp | Gly | Arg | Tyr | Arg | Cys | Ser | Met | Asp | Leu | Lys | Asn | Ile | Asn | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |

<210> 372
 <211> 1281
 <212> DNA
 <213> Homo sapiens

<400> 372
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 gaaatgtctt tcctccagga cccaagtttc ttcacccatgg ggatgtgggc 100
 cattggtgca ggagccctgg gggctgctgc cttggcattg ctgcttgcca 150
 acacagacgt gtttctgtcc aagccccaga aagcggccct ggagtacctg 200
 gaggatatag acctgaaaac actggagaag gaaccaagga ctttcaaagc 250
 aaaggagcta tgggaaaaaa atggagctgt gattatggcc gtgcggaggc 300
 caggctgttt cctctgtcga gaggaagctg cggatctgtc ctccctgaaa 350
 agcatgttgg accagctggg cgtccccctc tatgcagtgg taaaggagca 400
 catcaggact gaagtgaagg atttccagcc ttatttcaaa ggagaaatct 450
 tcctggatga aaagaaaaag ttctatggtc cacaaaggcg gaagatgatg 500
 tttatgggat ttatccgtct gggagtgtgg tacaacttct tccgagcctg 550
 gaacggaggc ttctctggaa acctggaagg agaaggcttc atccttgggg 600
 gagttttctg ggtgggatca ggaaagcagg gcatttctct tgagcaccga 650
 gaaaaagaat ttggagacaa agtaaaccta ctttctgttc tggaaagctgc 700
 taagatgato aaaccacaga ctttggcctc agagaaaaaa tgattgtgtg 750
 aaactgcccc gctcagggat aaccaggac attcacctgt gttcatggga 800
 tgtattgttt ccactcgtgt ccctaaggag tgagaaacc atttatactc 850
 tactctcagt atggattatt aatgtatatt aatattctgt ttaggccac 900
 taaggcaaaa tagccccaaa acaagactga caaaaatctg aaaaactaat 950
 gaggattatt aagctaaaac ctgggaaata ggaggcttaa aattgactgc 1000
 caggctgggt gcagtggctc acacctgtaa tcccagcact ttgggaggcc 1050
 aaggtgagca agtcacttga ggtcgggagt tcgagaccag cctgagcaac 1100
 atggcgaaac cccgtctcta ctaaaaatac aaaaatcacc cgggtgtggt 1150
 ggcaggcacc tgtagtccca gctacccggg aggctgaggc aggagaatca 1200
 cttgaacctg ggaggtggag gttgcggtga gctgagatca caccactgta 1250
 ttccagcctg ggtgactgag actctaacta a 1281

<210> 373
 <211> 229
 <212> PRT
 <213> Homo sapiens

<400> 373

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Phe | Leu | Gln | Asp | Pro | Ser | Phe | Phe | Thr | Met | Gly | Met | Trp |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Ser | Ile | Gly | Ala | Gly | Ala | Leu | Gly | Ala | Ala | Ala | Leu | Ala | Leu | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Leu | Ala | Asn | Thr | Asp | Val | Phe | Leu | Ser | Lys | Pro | Gln | Lys | Ala | Ala |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Leu | Glu | Tyr | Leu | Glu | Asp | Ile | Asp | Leu | Lys | Thr | Leu | Glu | Lys | Glu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Arg | Thr | Phe | Lys | Ala | Lys | Glu | Leu | Trp | Glu | Lys | Asn | Gly | Ala |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Val | Ile | Met | Ala | Val | Arg | Arg | Pro | Gly | Cys | Phe | Leu | Cys | Arg | Glu |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Glu | Ala | Ala | Asp | Leu | Ser | Ser | Leu | Lys | Ser | Met | Leu | Asp | Gln | Leu |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Gly | Val | Pro | Leu | Tyr | Ala | Val | Val | Lys | Glu | His | Ile | Arg | Thr | Glu |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Val | Lys | Asp | Phe | Gln | Pro | Tyr | Phe | Lys | Gly | Glu | Ile | Phe | Leu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Glu | Lys | Lys | Lys | Phe | Tyr | Gly | Pro | Gln | Arg | Arg | Lys | Met | Met | Phe |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Met | Gly | Phe | Ile | Arg | Leu | Gly | Val | Trp | Tyr | Asn | Phe | Phe | Arg | Ala |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Trp | Asn | Gly | Gly | Phe | Ser | Gly | Asn | Leu | Glu | Gly | Glu | Gly | Phe | Ile |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Leu | Gly | Gly | Val | Phe | Val | Val | Gly | Ser | Gly | Lys | Gln | Gly | Ile | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Leu | Glu | His | Arg | Glu | Lys | Glu | Phe | Gly | Asp | Lys | Val | Asn | Leu | Leu |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Ser | Val | Leu | Glu | Ala | Ala | Lys | Met | Ile | Lys | Pro | Gln | Thr | Leu | Ala |
| | | | | 215 | | | | | 220 | | | | | 225 |

Ser Glu Lys Lys

<210> 374
 <211> 744
 <212> DNA
 <213> Homo sapiens

<400> 374

acggaccgag ggttcgaggg agggacacgg accaggaacc tgagctaggt 50
 caaagacgcc cgggccaggt gcccgcgcgc aggtgccctt ggccggagat 100

gcggtaggag gggcgagcgc gagaagcccc ttcctcggcg ctgccaaccc 150
gccaccacgc ccatggcgaa ccccgggctg gggctgcttc tggcgctggg 200
cctgccgttc ctgctggccc gctggggccg agcctggggg caaatacaga 250
ccacttctgc aaatgagaat agcactgttt tgccttcac caccagctcc 300
agctccgatg gcaacctgcg tccggaagcc atcactgcta tcatcgtgg 350
cttctccctc ttggctgcct tgctcctggc tgtggggctg gcactgttgg 400
tgcggaagct tcgggagaag cggcagacgg agggcaccta ccggcccagt 450
agcgaggagc agttctccca tgcagccgag gcccgggccc ctcaggactc 500
caaggagacg gtgcagggct gcctgcccac ctaggtcccc tctcctgcat 550
ctgtctccct tcattgctgt gtgaccttgg ggaaaggcag tgccctctct 600
gggcagtcag atccaccacg tgcttaatat caggaagaa ggtacttcaa 650
agactctgcc cctgaggtca agagaggatg gggctattca cttttatata 700
tttatataaa attagtagtg agatgtaaaa aaaaaaaaaa aaaa 744

<210> 375
<211> 123
<212> PRT
<213> Homo sapiens

<400> 375
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Phe Leu Leu Ala Arg Trp Gly Arg Ala Trp Gly Gln Ile Gln Thr
20 25 30
Thr Ser Ala Asn Glu Asn Ser Thr Val Leu Pro Ser Ser Thr Ser
35 40 45
Ser Ser Ser Asp Gly Asn Leu Arg Pro Glu Ala Ile Thr Ala Ile
50 55 60
Ile Val Val Phe Ser Leu Leu Ala Ala Leu Leu Leu Ala Val Gly
65 70 75
Leu Ala Leu Leu Val Arg Lys Leu Arg Glu Lys Arg Gln Thr Glu
80 85 90
Gly Thr Tyr Arg Pro Ser Ser Glu Glu Gln Phe Ser His Ala Ala
95 100 105
Glu Ala Arg Ala Pro Gln Asp Ser Lys Glu Thr Val Gln Gly Cys
110 115 120
Leu Pro Ile

<210> 376
<211> 713
<212> DNA
<213> Homo sapiens

<400> 376
aatatatcat ctatttatca ttaatcaata atgtattcctt ttattccaat 50
aacatttggg ttttgggatt ttaattttca aacacagcag aatgacattt 100
tttctgtcac tattattatt gttggtatgt gaagctatctt ggagatccaa 150
ttcaggaagc aacacattgg agaatggcta ctttctatca agaaataaag 200
agaaccacag tcaaccacac caatcatctt tagaagacag tgtgactcct 250
accaaagctg tcaaaaccac aggcaagggc atagttaaag gacggaatct 300
tgactcaaga gggttaattc ttggtgctga agcctggggc aggggtgtaa 350
agaaaaacac ttagattcaa tgattgtaa tttaaggcaa atacacatat 400
tagtattacc ttagtgtaat gtatccctgt catatataca ataaggtgaa 450
attataagta ccctatgcag ttggctggac agttctaaat tggactttat 500
taatttttaa aatcagtaac tgatttatca ctggctatgt gcttagatct 550
acaggagatc atataatttg atacaaataa aagaaaagtg ttctctcccc 600
ttacagaatt gacattttta atgcgataca gttagaatag gaaatatgac 650
attagaaagg aagaatgaca gggagaaagg aaagaaggga aaatgttgcc 700
aaggaaaaaa aaa 713

<210> 377
<211> 90
<212> PRT
<213> Homo sapiens

<400> 377
Met Thr Phe Phe Leu Ser Leu Leu Leu Leu Val Cys Glu Ala
1 5 10 15
Ile Trp Arg Ser Asn Ser Gly Ser Asn Thr Leu Glu Asn Gly Tyr
20 25 30
Phe Leu Ser Arg Asn Lys Glu Asn His Ser Gln Pro Thr Gln Ser
35 40 45
Ser Leu Glu Asp Ser Val Thr Pro Thr Lys Ala Val Lys Thr Thr
50 55 60
Gly Lys Gly Ile Val Lys Gly Arg Asn Leu Asp Ser Arg Gly Leu
65 70 75
Ile Leu Gly Ala Glu Ala Trp Gly Arg Gly Val Lys Lys Asn Thr
80 85 90

<210> 378
<211> 3265
<212> DNA
<213> Homo sapiens

<400> 378
gccaggaata actagagagg aacaatgggg ttattcagag gttttgtttt 50

cctcttagtt ctgtgcctgc tgcaccagtc aaatacttcc ttcattaagc 100
tgaataataa tggctttgaa gatattgtca ttgttataga toctagtgtg 150
ccagaagatg aaaaaataat tgaacaaata gaggatatgg tgactacagc 200
ttctacgtac ctgtttgaag ccacagaaaa aagatttttt ttcaaaaatg 250
tatctatatt aattcctgag aattggaagg aaaatcctca gtacaaaagg 300
ccaaaacatg aaaccataa acatgctgat gttatagttg caccacctac 350
actcccaggt agagatgaac catacaccaa gcagttcaca gaatgtggag 400
agaaaggcga atacattcac ttcacccctg accttctact tggaaaaaaa 450
caaaatgaat atggaccacc agggaaactg tttgtccatg agtgggctca 500
cctccggtgg ggagtgtttg atgagtacaa tgaagatcag cctttctacc 550
gtgctaagtc aaaaaaatc gaagcaacaa ggtgttccgc aggtatctct 600
ggtagaaata gagtttataa gtgtcaagga ggcagctgtc ttagtagagc 650
atgcagaatt gattctacaa caaaactgta tggaaaagat tgtcaattct 700
ttcctgataa agtacaaaca gaaaaagcat ccataatgtt tatgcaaagt 750
attgattctg ttgttgaatt ttgtaacgaa aaaaccata atcaagaagc 800
tccaagccta caaaacataa agtgcaattt tagaagtaca tgggaggtga 850
ttagcaattc tgaggatttt aaaaacacca taccatggg gacaccacct 900
cctccacctg tcttctcatt gctgaagatc agtcaaagaa ttgtgtgctt 950
agttcttgat aagtctggaa gcatgggggg taaggaccgc ctaaatcgaa 1000
tgaatcaagc agcaaaacat ttcctgctgc agactgttga aaatggatcc 1050
tgggtgggga tgggttactt tgatagtact gccactattg taaataagct 1100
aatccaaata aaaagcagtg atgaaagaaa cacactcatg gcaggattac 1150
ctacatatcc tctgggagga acttccatct gctctggaat taaatatgca 1200
tttcagggtga ttggagagct acattcccaa ctcgatggat ccgaagtact 1250
gctgctgact gatggggagg ataacactgc aagttcttgt attgatgaag 1300
tgaaacaaag tggggccatt gttcatttta ttgctttggg aagagctgct 1350
gatgaagcag taatagagat gagcaagata acaggaggaa gtcattttta 1400
tgtttcagat gaagctcaga acaatggcct cattgatgct tttggggctc 1450
ttacatcagg aaatactgat ctctcccaga agtcccttca gctcgaaagt 1500
aagggattaa cactgaatag taatgcctgg atgaacgaca ctgtcataat 1550
tgatagtaca gtgggaaagg acacgttctt tctcatcaca tggaacagtc 1600
tgcctcccag tatttctctc tgggatccca gtggaacaat aatggaaaat 1650

ttcacagtgg atgcaacttc caaaatggcc tatctcagta ttccaggaac 1700
 tgcaaagggtg ggcacttggg catacaatct tcaagccaaa gcgaacccag 1750
 aaacattaac tattacagta acttctcgag cagcaaattc ttctgtgcct 1800
 ccaatcacag tgaatgctaa aatgaataag gacgtaaaca gtttccccag 1850
 cccaatgatt gtttacgcag aaattctaca aggatatgta cctgttcttg 1900
 gagccaatgt gactgctttc attgaatcac agaattggaca tacagaagtt 1950
 ttggaacttt tggataatgg tgcaggcgct gattctttca agaattgatg 2000
 agtctactcc aggtatttta cagcatatac agaaaatggc agatatagct 2050
 taaaagttcg ggctcatgga ggagcaaaca ctgccaggct aaaattacgg 2100
 cctccactga atagagccgc gtacatacca ggctgggtag tgaacgggga 2150
 aattgaagca aaccgcgcaa gacctgaaat tgatgaggat actcagacca 2200
 ccttgaggga tttcagccga acagcatccg gaggtgcatt tgtggtatca 2250
 caagtcccaa gccttccctt gcctgaccaa taccaccaa gtcaaatcac 2300
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 caccaggaga taattttgat gttggaagg ttcaacgtta tatcataaga 2400
 ataagtgcaa gtattcttga tctaagagac agttttgatg atgctcttca 2450
 agtaaatact actgatctgt caccaaagga ggccaactcc aaggaaagct 2500
 ttgcatttaa accagaaaat atctcagaag aaaatgcaac ccacatattt 2550
 attgccatta aaagtataga taaaagcaat ttgacatcaa aagtatccaa 2600
 cattgcacaa gtaactttgt ttatccctca agcaaactct gatgacattg 2650
 atcctacacc tactcctact cctactccta ctcttgataa aagtcataat 2700
 tctggagtta atattttctac gctgggtattg tctgtgattg ggtctgttgt 2750
 aattgttaac tttattttta gtaccaccat ttgaacctta acgaagaaaa 2800
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 gtaaaggata tttctgaatc ttaaaattca toccatgtgt gatcataaac 2900
 tcataaaaaat aattttaaga tgtcggaaaa ggatactttg attaaataaa 2950
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| Leu | His | Gln | Ser | Asn | Thr | Ser | Phe | Ile | Lys | Leu | Asn | Asn | Asn | Gly | |
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| | | | | 65 | | | | | 70 | | | | | 75 | |
| Val | Ser | Ile | Leu | Ile | Pro | Glu | Asn | Trp | Lys | Glu | Asn | Pro | Gln | Tyr | |
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| Lys | Arg | Pro | Lys | His | Glu | Asn | His | Lys | His | Ala | Asp | Val | Ile | Val | |
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| Phe | Thr | Glu | Cys | Gly | Glu | Lys | Gly | Glu | Tyr | Ile | His | Phe | Thr | Pro | |
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| Asp | Leu | Leu | Leu | Gly | Lys | Lys | Gln | Asn | Glu | Tyr | Gly | Pro | Pro | Gly | |
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| Asp | Glu | Tyr | Asn | Glu | Asp | Gln | Pro | Phe | Tyr | Arg | Ala | Lys | Ser | Lys | |
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| | | |
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| Ser Met Gly Gly Lys Asp Arg Leu Asn Arg Met Asn Gln Ala Ala | | |
| 320 | 325 | 330 |
| Lys His Phe Leu Leu Gln Thr Val Glu Asn Gly Ser Trp Val Gly | | |
| 335 | 340 | 345 |
| Met Val His Phe Asp Ser Thr Ala Thr Ile Val Asn Lys Leu Ile | | |
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| Gln Ile Lys Ser Ser Asp Glu Arg Asn Thr Leu Met Ala Gly Leu | | |
| 365 | 370 | 375 |
| Pro Thr Tyr Pro Leu Gly Gly Thr Ser Ile Cys Ser Gly Ile Lys | | |
| 380 | 385 | 390 |
| Tyr Ala Phe Gln Val Ile Gly Glu Leu His Ser Gln Leu Asp Gly | | |
| 395 | 400 | 405 |
| Ser Glu Val Leu Leu Leu Thr Asp Gly Glu Asp Asn Thr Ala Ser | | |
| 410 | 415 | 420 |
| Ser Cys Ile Asp Glu Val Lys Gln Ser Gly Ala Ile Val His Phe | | |
| 425 | 430 | 435 |
| Ile Ala Leu Gly Arg Ala Ala Asp Glu Ala Val Ile Glu Met Ser | | |
| 440 | 445 | 450 |
| Lys Ile Thr Gly Gly Ser His Phe Tyr Val Ser Asp Glu Ala Gln | | |
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| Asn Asn Gly Leu Ile Asp Ala Phe Gly Ala Leu Thr Ser Gly Asn | | |
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| Thr Asp Leu Ser Gln Lys Ser Leu Gln Leu Glu Ser Lys Gly Leu | | |
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| Thr Leu Asn Ser Asn Ala Trp Met Asn Asp Thr Val Ile Ile Asp | | |
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| Glu Asn Phe Thr Val Asp Ala Thr Ser Lys Met Ala Tyr Leu Ser | | |
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| Ile Pro Gly Thr Ala Lys Val Gly Thr Trp Ala Tyr Asn Leu Gln | | |
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| Ala Lys Ala Asn Pro Glu Thr Leu Thr Ile Thr Val Thr Ser Arg | | |
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| Ala Ala Asn Ser Ser Val Pro Pro Ile Thr Val Asn Ala Lys Met | | |

| 590 | | | | | 595 | | | | | 600 | | | | |
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| | | | | 620 | | | | | 625 | | | | | 630 |
| Ala | Phe | Ile | Glu | Ser | Gln | Asn | Gly | His | Thr | Glu | Val | Leu | Glu | Leu |
| | | | | 635 | | | | | 640 | | | | | 645 |
| Leu | Asp | Asn | Gly | Ala | Gly | Ala | Asp | Ser | Phe | Lys | Asn | Asp | Gly | Val |
| | | | | 650 | | | | | 655 | | | | | 660 |
| Tyr | Ser | Arg | Tyr | Phe | Thr | Ala | Tyr | Thr | Glu | Asn | Gly | Arg | Tyr | Ser |
| | | | | 665 | | | | | 670 | | | | | 675 |
| Leu | Lys | Val | Arg | Ala | His | Gly | Gly | Ala | Asn | Thr | Ala | Arg | Leu | Lys |
| | | | | 680 | | | | | 685 | | | | | 690 |
| Leu | Arg | Pro | Pro | Leu | Asn | Arg | Ala | Ala | Tyr | Ile | Pro | Gly | Trp | Val |
| | | | | 695 | | | | | 700 | | | | | 705 |
| Val | Asn | Gly | Glu | Ile | Glu | Ala | Asn | Pro | Pro | Arg | Pro | Glu | Ile | Asp |
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| Glu | Asp | Thr | Gln | Thr | Thr | Leu | Glu | Asp | Phe | Ser | Arg | Thr | Ala | Ser |
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| Gly | Gly | Ala | Phe | Val | Val | Ser | Gln | Val | Pro | Ser | Leu | Pro | Leu | Pro |
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| Asp | Gln | Tyr | Pro | Pro | Ser | Gln | Ile | Thr | Asp | Leu | Asp | Ala | Thr | Val |
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| His | Glu | Asp | Lys | Ile | Ile | Leu | Thr | Trp | Thr | Ala | Pro | Gly | Asp | Asn |
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| Phe | Asp | Val | Gly | Lys | Val | Gln | Arg | Tyr | Ile | Ile | Arg | Ile | Ser | Ala |
| | | | | 785 | | | | | 790 | | | | | 795 |
| Ser | Ile | Leu | Asp | Leu | Arg | Asp | Ser | Phe | Asp | Asp | Ala | Leu | Gln | Val |
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| Asn | Thr | Thr | Asp | Leu | Ser | Pro | Lys | Glu | Ala | Asn | Ser | Lys | Glu | Ser |
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| Phe | Ala | Phe | Lys | Pro | Glu | Asn | Ile | Ser | Glu | Glu | Asn | Ala | Thr | His |
| | | | | 830 | | | | | 835 | | | | | 840 |
| Ile | Phe | Ile | Ala | Ile | Lys | Ser | Ile | Asp | Lys | Ser | Asn | Leu | Thr | Ser |
| | | | | 845 | | | | | 850 | | | | | 855 |
| Lys | Val | Ser | Asn | Ile | Ala | Gln | Val | Thr | Leu | Phe | Ile | Pro | Gln | Ala |
| | | | | 860 | | | | | 865 | | | | | 870 |
| Asn | Pro | Asp | Asp | Ile | Asp | Pro | Thr | Pro | Thr | Pro | Thr | Pro | Thr | Pro |
| | | | | 875 | | | | | 880 | | | | | 885 |
| Thr | Pro | Asp | Lys | Ser | His | Asn | Ser | Gly | Val | Asn | Ile | Ser | Thr | Leu |
| | | | | 890 | | | | | 895 | | | | | 900 |
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 Pro Arg Ala Asn Ser Pro Thr Gly Lys Glu Gly Tyr Gln Ala Val
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 Leu Gln Glu Trp Glu Glu Gln His Arg Asn Tyr Val Ser Ser Leu
 65 70 75
 Lys Arg Gln Ile Ala Gln Leu Lys Glu Glu Leu Gln Glu Arg Ser
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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gln | Leu | Arg | Asn | Gly | Gln | Tyr | Gln | Ala | Ser | Asp | Ala | Ala | Gly | 95 | 100 | 105 |
| Leu | Gly | Leu | Asp | Arg | Ser | Pro | Pro | Glu | Lys | Thr | Gln | Ala | Asp | Leu | 110 | 115 | 120 |
| Leu | Ala | Phe | Leu | His | Ser | Gln | Val | Asp | Lys | Ala | Glu | Val | Asn | Ala | 125 | 130 | 135 |
| Gly | Val | Lys | Leu | Ala | Thr | Glu | Tyr | Ala | Ala | Val | Pro | Phe | Asp | Ser | 140 | 145 | 150 |
| Phe | Thr | Leu | Gln | Lys | Val | Tyr | Gln | Leu | Glu | Thr | Gly | Leu | Thr | Arg | 155 | 160 | 165 |
| His | Pro | Glu | Glu | Lys | Pro | Val | Arg | Lys | Asp | Lys | Arg | Asp | Glu | Leu | 170 | 175 | 180 |
| Val | Glu | Ala | Ile | Glu | Ser | Ala | Leu | Glu | Thr | Leu | Asn | Asn | Pro | Ala | 185 | 190 | 195 |
| Glu | Asn | Ser | Pro | Asn | His | Arg | Pro | Tyr | Thr | Ala | Ser | Asp | Phe | Ile | 200 | 205 | 210 |
| Glu | Gly | Ile | Tyr | Arg | Thr | Glu | Arg | Asp | Lys | Gly | Thr | Leu | Tyr | Glu | 215 | 220 | 225 |
| Leu | Thr | Phe | Lys | Gly | Asp | His | Lys | His | Glu | Phe | Lys | Arg | Leu | Ile | 230 | 235 | 240 |
| Leu | Phe | Arg | Pro | Phe | Ser | Pro | Ile | Met | Lys | Val | Lys | Asn | Glu | Lys | 245 | 250 | 255 |
| Leu | Asn | Met | Ala | Asn | Thr | Leu | Ile | Asn | Val | Ile | Val | Pro | Leu | Ala | 260 | 265 | 270 |
| Lys | Arg | Val | Asp | Lys | Phe | Arg | Gln | Phe | Met | Gln | Asn | Phe | Arg | Glu | 275 | 280 | 285 |
| Met | Cys | Ile | Glu | Gln | Asp | Gly | Arg | Val | His | Leu | Thr | Val | Val | Tyr | 290 | 295 | 300 |
| Phe | Gly | Lys | Glu | Glu | Ile | Asn | Glu | Val | Lys | Gly | Ile | Leu | Glu | Asn | 305 | 310 | 315 |
| Thr | Ser | Lys | Ala | Ala | Asn | Phe | Arg | Asn | Phe | Thr | Phe | Ile | Gln | Leu | 320 | 325 | 330 |
| Asn | Gly | Glu | Phe | Ser | Arg | Gly | Lys | Gly | Leu | Asp | Val | Gly | Ala | Arg | 335 | 340 | 345 |
| Phe | Trp | Lys | Gly | Ser | Asn | Val | Leu | Leu | Phe | Phe | Cys | Asp | Val | Asp | 350 | 355 | 360 |
| Ile | Tyr | Phe | Thr | Ser | Glu | Phe | Leu | Asn | Thr | Cys | Arg | Leu | Asn | Thr | 365 | 370 | 375 |
| Gln | Pro | Gly | Lys | Lys | Val | Phe | Tyr | Pro | Val | Leu | Phe | Ser | Gln | Tyr | 380 | 385 | 390 |
| Asn | Pro | Gly | Ile | Ile | Tyr | Gly | His | His | Asp | Ala | Val | Pro | Pro | Leu | 395 | 400 | 405 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Glu | Gln | Gln | Leu | Val | Ile | Lys | Lys | Glu | Thr | Gly | Phe | Trp | Arg | Asp | |
| | | | | 410 | | | | | 415 | | | | | 420 | |
| Phe | Gly | Phe | Gly | Met | Thr | Cys | Gln | Tyr | Arg | Ser | Asp | Phe | Ile | Asn | |
| | | | | 425 | | | | | 430 | | | | | 435 | |
| Ile | Gly | Gly | Phe | Asp | Leu | Asp | Ile | Lys | Gly | Trp | Gly | Gly | Glu | Asp | |
| | | | | 440 | | | | | 445 | | | | | 450 | |
| Val | His | Leu | Tyr | Arg | Lys | Tyr | Leu | His | Ser | Asn | Leu | Ile | Val | Val | |
| | | | | 455 | | | | | 460 | | | | | 465 | |
| Arg | Thr | Pro | Val | Arg | Gly | Leu | Phe | His | Leu | Trp | His | Glu | Lys | Arg | |
| | | | | 470 | | | | | 475 | | | | | 480 | |
| Cys | Met | Asp | Glu | Leu | Thr | Pro | Glu | Gln | Tyr | Lys | Met | Cys | Met | Gln | |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ser | Lys | Ala | Met | Asn | Glu | Ala | Ser | His | Gly | Gln | Leu | Gly | Met | Leu | |
| | | | | 500 | | | | | 505 | | | | | 510 | |
| Val | Phe | Arg | His | Glu | Ile | Glu | Ala | His | Leu | Arg | Lys | Gln | Lys | Gln | |
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<211> 212

<212> PRT

<213> Homo sapiens

<400> 387

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20 25 30

Ile Arg Thr Ala Leu Gly Asp Lys Ala Tyr Ala Trp Asp Thr Asn
35 40 45

Glu Glu Tyr Leu Phe Lys Ala Met Val Ala Phe Ser Met Arg Lys
50 55 60

Val Pro Asn Arg Glu Ala Thr Glu Ile Ser His Val Leu Leu Cys
65 70 75

Asn Val Thr Gln Arg Val Ser Phe Trp Phe Val Val Thr Asp Pro
80 85 90

Ser Lys Asn His Thr Leu Pro Ala Val Glu Val Gln Ser Ala Ile
95 100 105

Arg Met Asn Lys Asn Arg Ile Asn Asn Ala Phe Phe Leu Asn Asp
110 115 120

Gln Thr Leu Glu Phe Leu Lys Ile Pro Ser Thr Leu Ala Pro Pro
125 130 135

Met Asp Pro Ser Val Pro Ile Trp Ile Ile Ile Phe Gly Val Ile
140 145 150

Phe Cys Ile Ile Ile Val Ala Ile Ala Leu Leu Ile Leu Ser Gly
155 160 165

Ile Trp Gln Arg Arg Arg Lys Asn Lys Glu Pro Ser Glu Val Asp
170 175 180

Asp Ala Glu Asp Lys Cys Glu Asn Met Ile Thr Ile Glu Asn Gly
185 190 195

Ile Pro Ser Asp Pro Leu Asp Met Lys Gly Gly Ile Leu Met Met
200 205 210

Pro Ser

<210> 388

<211> 1371

<212> DNA

<213> Homo sapiens

<400> 388

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<210> 389

<211> 215

<212> PRT

<213> Homo sapiens

<400> 389

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| Met | Tyr | Gly | Lys | Ser | Ser | Thr | Arg | Ala | Val | Leu | Leu | Leu | Leu | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Gln | Leu | Thr | Ala | Leu | Trp | Pro | Ile | Ala | Ala | Val | Glu | Ile | Tyr | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Thr | Ser | Arg | Val | Leu | Glu | Ala | Val | Asn | Gly | Thr | Asp | Ala | Arg | Leu | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Lys | Cys | Thr | Phe | Ser | Ser | Phe | Ala | Pro | Val | Gly | Asp | Ala | Leu | Thr | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Val | Thr | Trp | Asn | Phe | Arg | Pro | Leu | Asp | Gly | Gly | Pro | Glu | Gln | Phe | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Val | Phe | Tyr | Tyr | His | Ile | Asp | Pro | Phe | Gln | Pro | Met | Ser | Gly | Arg | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Phe | Lys | Asp | Arg | Val | Ser | Trp | Asp | Gly | Asn | Pro | Glu | Arg | Tyr | Asp | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Ala | Ser | Ile | Leu | Leu | Trp | Lys | Leu | Gln | Phe | Asp | Asp | Asn | Gly | Thr | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Tyr | Thr | Cys | Gln | Val | Lys | Asn | Pro | Pro | Asp | Val | Asp | Gly | Val | Ile | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Gly | Glu | Ile | Arg | Leu | Ser | Val | Val | His | Thr | Val | Arg | Phe | Ser | Glu | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Ile | His | Phe | Leu | Ala | Leu | Ala | Ile | Gly | Ser | Ala | Cys | Ala | Leu | Met | |
| | | | | 155 | | | | | 160 | | | | | 165 | |
| Ile | Ile | Ile | Val | Ile | Val | Val | Val | Leu | Phe | Gln | His | Tyr | Arg | Lys | |
| | | | | 170 | | | | | 175 | | | | | 180 | |
| Lys | Arg | Trp | Ala | Glu | Arg | Ala | His | Lys | Val | Val | Glu | Ile | Lys | Ser | |
| | | | | 185 | | | | | 190 | | | | | 195 | |
| Lys | Glu | Glu | Glu | Arg | Leu | Asn | Gln | Glu | Lys | Lys | Val | Ser | Val | Tyr | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Leu | Glu | Asp | Thr | Asp | | | | | | | | | | | |
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<220>

<223> Synthetic oligonucleotide probe

<400> 390

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<210> 391

<211> 24

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<213> Artificial Sequence

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<223> Synthetic oligonucleotide probe

<400> 391

acaggcagag ccaatggcca gaggc 24

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 <211> 471
 <212> DNA
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 atccgacaac agctgctcca gctgacacgt atccagctac tggctcctgct 150
 gatgatgaag cccctgatgc tgaaccact gctgctgcaa ccaactgcgac 200
 cactgctgct cctaccactg caaccaccgc tgcttctacc actgctcgta 250
 aagacattcc agttttaccc aaatgggttg gggatctccc gaatggtaga 300
 gtgtgtccct gagatggaat cagcttgagt cttctgcaat tggtcacaac 350
 tattcatgct tcctgtgatt tcatccaact acttaccttg cctacgatat 400
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 <211> 90
 <212> PRT
 <213> Homo sapiens

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 20 25 30
 Tyr Pro Ala Thr Gly Pro Ala Asp Asp Glu Ala Pro Asp Ala Glu
 35 40 45
 Thr Thr Ala Ala Ala Thr Thr Ala Thr Thr Ala Ala Pro Thr Thr
 50 55 60
 Ala Thr Thr Ala Ala Ser Thr Thr Ala Arg Lys Asp Ile Pro Val
 65 70 75
 Leu Pro Lys Trp Val Gly Asp Leu Pro Asn Gly Arg Val Cys Pro
 80 85 90

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 <211> 25

<212> DNA
<213> Artificial Sequence

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<210> 396
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 396
cagggacaca ctctaccatt cgggag 26

<210> 397
<211> 42
<212> DNA
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<210> 398
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<210> 399
 <211> 120
 <212> PRT
 <213> Homo sapiens

<400> 399
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 20 25 30
 Asp Ala His Arg Leu Gln Pro Phe Val Thr Glu Arg Thr Leu Gly
 35 40 45
 Lys Val Gln Arg Trp Ser Gly Val His Thr Gln Thr Gly Gly Arg
 50 55 60
 Ala Gly Gly Gly Gln Phe Cys Cys Ala Trp Leu Asp Ser Lys Arg
 65 70 75
 Val Leu Ala Ser Pro Gly Trp Gly Ala Ala Asn Ser Ile Lys Asn
 80 85 90
 Gln Arg Val Trp Ala Pro Ala Thr Glu Ser Ser Ala Gln Leu Leu
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 Cys Cys Trp Pro Val Gly Val Ala Arg Gly Gly Ala Leu Cys Gln
 110 115 120

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 aacggtgtgt acaggaccac ggagggacgg ctgacaaagg ccaggaacag 200
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<210> 401
 <211> 198
 <212> PRT
 <213> Homo sapiens

<400> 401

| | | | | | | | | | | | | | | |
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| Met | Pro | Val | Pro | Ala | Leu | Cys | Leu | Leu | Trp | Ala | Leu | Ala | Met | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Arg | Pro | Ala | Ser | Ala | Ala | Pro | Met | Gly | Gly | Pro | Glu | Leu | Ala |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gln | His | Glu | Glu | Leu | Thr | Leu | Leu | Phe | His | Gly | Thr | Leu | Gln | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Gly | Gln | Ala | Leu | Asn | Gly | Val | Tyr | Arg | Thr | Thr | Glu | Gly | Arg | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Thr | Lys | Ala | Arg | Asn | Ser | Leu | Gly | Leu | Tyr | Gly | Arg | Thr | Ile | Glu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Leu | Leu | Gly | Gln | Glu | Val | Ser | Arg | Gly | Arg | Asp | Ala | Ala | Gln | Glu |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Leu | Arg | Ala | Ser | Leu | Leu | Glu | Thr | Gln | Met | Glu | Glu | Asp | Ile | Leu |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Gln | Leu | Gln | Ala | Glu | Ala | Thr | Ala | Glu | Val | Leu | Gly | Glu | Val | Ala |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Gln | Ala | Gln | Lys | Val | Leu | Arg | Asp | Ser | Val | Gln | Arg | Leu | Glu | Val |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Gln | Leu | Arg | Ser | Ala | Trp | Leu | Gly | Pro | Ala | Tyr | Arg | Glu | Phe | Glu |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Val | Leu | Lys | Ala | His | Ala | Asp | Lys | Gln | Ser | His | Ile | Leu | Trp | Ala |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Leu | Thr | Gly | His | Val | Gln | Arg | Gln | Arg | Arg | Glu | Met | Val | Ala | Gln |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Gln | His | Arg | Leu | Arg | Gln | Ile | Gln | Glu | Arg | Leu | His | Thr | Ala | Ala |

Leu Pro Ala

<210> 402
 <211> 1915
 <212> DNA
 <213> Homo sapiens

<400> 402

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| | | | | | |
|------------|-------------|-------------|-------------|-------------|------|
| atcaattttc | attcccacca | ttgcattaca | acctctaact | taaatgggta | 1350 |
| accctaaggc | atatcaaaga | agcagattgc | atgataaacg | gaaatagaaa | 1400 |
| aaaagaacct | acattttattt | tgcttttagca | tccttaactct | caccttttat | 1450 |
| gagattgaga | gtggacttac | atttcctttt | ttacatttttc | gtatatattat | 1500 |
| tttttttagc | catcattata | tgtttaagtc | tattatgggc | aaccaatctt | 1550 |
| tggaagctga | aaactgaatt | taaagaatgc | tatcttgga | aattgcatac | 1600 |
| gtctgtgcaa | ttttttattc | tgcctagtgc | tattctgctt | gtttaactag | 1650 |
| attgtacaaa | ataacttcat | tgcttaatat | caaattacaa | agtttagact | 1700 |
| tggagggaaa | tgggcttttt | agaagcaaac | aattttaaat | atattttgtt | 1750 |
| cttcaaataa | atagtgttta | aacattgaat | gtgttttgtg | aacaatatcc | 1800 |
| cactttgcaa | actttaacta | cacatgcttg | gaattaagtt | ttagctgttt | 1850 |
| tcattgctca | ataataaagc | ctgaattctg | atcaataaaa | aaaaaaaaaa | 1900 |
| aaaaaaaaaa | aaaaa | 1915 | | | |

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<210> 403
<211> 206
<212> PRT
<213> Homo sapiens
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| Met | Ala | Gln | Gln | Ala | Cys | Pro | Arg | Ala | Met | Ala | Lys | Asn | Gly | Leu | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Ile | Cys | Ile | Leu | Val | Ile | Thr | Leu | Leu | Leu | Asp | Gln | Thr | Thr | |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Ser | His | Thr | Ser | Arg | Leu | Lys | Ala | Arg | Lys | His | Ser | Lys | Arg | Arg | |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Val | Arg | Asp | Lys | Asp | Gly | Asp | Leu | Lys | Thr | Gln | Ile | Glu | Lys | Leu | |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Trp | Thr | Glu | Val | Asn | Ala | Leu | Lys | Glu | Ile | Gln | Ala | Leu | Gln | Thr | |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Val | Cys | Leu | Arg | Gly | Thr | Lys | Val | His | Lys | Lys | Cys | Tyr | Leu | Ala | |
| | | | | 80 | | | | | 85 | | | | | 90 | |
| Ser | Glu | Gly | Leu | Lys | His | Phe | His | Glu | Ala | Asn | Glu | Asp | Cys | Ile | |
| | | | | 95 | | | | | 100 | | | | | 105 | |
| Ser | Lys | Gly | Gly | Ile | Leu | Val | Ile | Pro | Arg | Asn | Ser | Asp | Glu | Ile | |
| | | | | 110 | | | | | 115 | | | | | 120 | |
| Asn | Ala | Leu | Gln | Asp | Tyr | Gly | Lys | Arg | Ser | Leu | Pro | Gly | Val | Asn | |
| | | | | 125 | | | | | 130 | | | | | 135 | |
| Asp | Phe | Trp | Leu | Gly | Ile | Asn | Asp | Met | Val | Thr | Glu | Gly | Lys | Phe | |
| | | | | 140 | | | | | 145 | | | | | 150 | |
| Val | Asp | Val | Asn | Gly | Ile | Ala | Ile | Ser | Phe | Leu | Asn | Trp | Asp | Arg | |

| | | | |
|---|-----|-----|-----|
| | 155 | 160 | 165 |
| Ala Gln Pro Asn Gly Gly Lys Arg Glu Asn Cys Val Leu Phe Ser | | | |
| 170 | 175 | 180 | |
| Gln Ser Ala Gln Gly Lys Trp Ser Asp Glu Ala Cys Arg Ser Ser | | | |
| 185 | 190 | 195 | |
| Lys Arg Tyr Ile Cys Glu Phe Thr Ile Pro Lys | | | |
| 200 | 205 | | |

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 404
 cctggttatc cccaggaact ccgac 25

<210> 405
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 405
 ctcttgctgc tgcgacaggc ctc 23

<210> 406
 <211> 46
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

<400> 406
 cgccctccaa gactatggta aaaggagcct gccaggtgtc aatgac 46

<210> 407
 <211> 570
 <212> DNA
 <213> Homo sapiens

<400> 407
 gcgaggaccg ggtataagaa gcctcgtggc cttgcccggg cagccgcagg 50
 ttccccgcgc gccccgagcc cccgcgccat gaagctcgcc gccctcctgg 100
 ggctctgcgt ggccctgtcc tgcagctccg ctgctgcttt cttagtgggc 150
 tcggccaagc ctgtggccca gcctgtcgct gcgctggagt cggcggcgga 200
 ggccgggggc gggaccctgg ccaacccct cggcaccctc aaccgctga 250
 agctcctgct gagcagcctg ggcatccccg tgaaccacct catagagggc 300
 tcccagaagt gtgtggctga gctgggtccc caggccgtgg gggccgtgaa 350

ggctcctgcc ttccctcttt aagggaactca gagagaccct ctcccgcac 550
 ctggaactgg gcctctcaca ggggagtttt gccttcatcc acaaggattt 600
 tgatgtcaaa gagactttct tcaatttatc caagaggtat ttgatacag 650
 agtgcggtgcc tatgaatttt cgcaatgcct cacaggccaa aaggctcatg 700
 aatcattaca ttaacaaaga gactcggggg aaaattccca aactgtttga 750
 tgagattaat cctgaaacca aattaattct tgtggattac atcttgttca 800
 aagggaatg gttgacccca ttgaccctg tcttcaccga agtcgacact 850
 ttccacctgg acaagtacaa gaccattaag gtgcccata tgtacgggtgc 900
 aggcaagttt gcctccacct ttgacaagaa ttttcgttgt catgtcctca 950
 aactgcccta ccaaggaaat gccaccatgc tgggtggtcct catggagaaa 1000
 atgggtgacc acctcgccct tgaagactac ctgaccacag acttggtgga 1050
 gacatggctc agaaacatga aaaccagaaa catggaagtt ttctttccga 1100
 agttcaagct agatcagaag tatgagatgc atgagctgct taggcagatg 1150
 ggaatcagaa gaatcttctc accctttgct gaccttagtg aactctcagc 1200
 tactggaaga aatctccaag tatccagggt ttacgaaga acagtgattg 1250
 aagttgatga aaggggcact gaggcagtgg caggaatctt gtcagaaatt 1300
 actgcttatt ccatgcctcc tgtcatcaaa gtggaccggc catttcattt 1350
 catgatctat gaagaaacct ctggaatgct tctgtttctg ggcaggggtg 1400
 tgaatccgac tctcctataa ttcaggacat gcataagcac ttogtgctgt 1450
 agtagatgct gaatctgagg tatcaaacac acacaggata ccagcaatgg 1500
 atggcagggg agagtgttcc tttgtttctt aactagttaa ggggtgttctc 1550
 aaataaatac agtagtcccc acttatctga gggggatata ttcaaagacc 1600
 cccagcagat gcctgaaacg gtggacagtgc ctgaacctta tatatatttt 1650
 ttctacaca tacataccta tgataaagtt taattttataa attaggcaca 1700
 gtaagagatt aacaataata acaacattaa gtaaaatgag ttacttgaac 1750
 gcaagcactg caataccata acagtcaaac tgattataga gaaggctact 1800
 aagtgactca tgggcgagga gcatagacag tgtggagaca ttgggcaagg 1850
 ggagaattca catcctgggt gggacagagc aggacgatgc aagattccat 1900
 cccactactc agaatggcat gctgcttaag acttttagat tgtttatttc 1950
 tggaattttt catttaatgt ttttgacca tggttgacca tggttaactg 2000
 agactgcaga aagcaaaacc atggataagg gaggactact acaaaagcat 2050
 taaattgata catatttttt aaaaaaaaaa aaaaaaaaaa 2089

<210> 410
 <211> 444
 <212> PRT
 <213> Homo sapiens

<400> 410

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Val | Val | Pro | Ser | Leu | Leu | Leu | Ser | Val | Leu | Leu | Ala | Gln |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Trp | Leu | Val | Pro | Gly | Leu | Ala | Pro | Ser | Pro | Gln | Ser | Pro | Glu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Thr | Pro | Ala | Pro | Gln | Asn | Gln | Thr | Ser | Arg | Val | Val | Gln | Ala | Pro |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Arg | Glu | Glu | Glu | Glu | Asp | Glu | Gln | Glu | Ala | Ser | Glu | Glu | Lys | Ala |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gly | Glu | Glu | Glu | Lys | Ala | Trp | Leu | Met | Ala | Ser | Arg | Gln | Gln | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Ala | Lys | Glu | Thr | Ser | Asn | Phe | Gly | Phe | Ser | Leu | Leu | Arg | Lys | Ile |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Met | Arg | His | Asp | Gly | Asn | Met | Val | Phe | Ser | Pro | Phe | Gly | Met |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Ser | Leu | Ala | Met | Thr | Gly | Leu | Met | Leu | Gly | Ala | Thr | Gly | Pro | Thr |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Glu | Thr | Gln | Ile | Lys | Arg | Gly | Leu | His | Leu | Gln | Ala | Leu | Lys | Pro |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Thr | Lys | Pro | Gly | Leu | Leu | Pro | Ser | Leu | Phe | Lys | Gly | Leu | Arg | Glu |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Thr | Leu | Ser | Arg | Asn | Leu | Glu | Leu | Gly | Leu | Ser | Gln | Gly | Ser | Phe |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Ala | Phe | Ile | His | Lys | Asp | Phe | Asp | Val | Lys | Glu | Thr | Phe | Phe | Asn |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Leu | Ser | Lys | Arg | Tyr | Phe | Asp | Thr | Glu | Cys | Val | Pro | Met | Asn | Phe |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Arg | Asn | Ala | Ser | Gln | Ala | Lys | Arg | Leu | Met | Asn | His | Tyr | Ile | Asn |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Lys | Glu | Thr | Arg | Gly | Lys | Ile | Pro | Lys | Leu | Phe | Asp | Glu | Ile | Asn |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Pro | Glu | Thr | Lys | Leu | Ile | Leu | Val | Asp | Tyr | Ile | Leu | Phe | Lys | Gly |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Trp | Leu | Thr | Pro | Phe | Asp | Pro | Val | Phe | Thr | Glu | Val | Asp | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Phe | His | Leu | Asp | Lys | Tyr | Lys | Thr | Ile | Lys | Val | Pro | Met | Met | Tyr |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Gly | Ala | Gly | Lys | Phe | Ala | Ser | Thr | Phe | Asp | Lys | Asn | Phe | Arg | Cys |
| | | | | 275 | | | | | 280 | | | | | 285 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Leu | Lys | Leu | Pro | Tyr | Gln | Gly | Asn | Ala | Thr | Met | Leu | Val | 290 | 295 | 300 |
| Val | Leu | Met | Glu | Lys | Met | Gly | Asp | His | Leu | Ala | Leu | Glu | Asp | Tyr | 305 | 310 | 315 |
| Leu | Thr | Thr | Asp | Leu | Val | Glu | Thr | Trp | Leu | Arg | Asn | Met | Lys | Thr | 320 | 325 | 330 |
| Arg | Asn | Met | Glu | Val | Phe | Phe | Pro | Lys | Phe | Lys | Leu | Asp | Gln | Lys | 335 | 340 | 345 |
| Tyr | Glu | Met | His | Glu | Leu | Leu | Arg | Gln | Met | Gly | Ile | Arg | Arg | Ile | 350 | 355 | 360 |
| Phe | Ser | Pro | Phe | Ala | Asp | Leu | Ser | Glu | Leu | Ser | Ala | Thr | Gly | Arg | 365 | 370 | 375 |
| Asn | Leu | Gln | Val | Ser | Arg | Val | Leu | Arg | Arg | Thr | Val | Ile | Glu | Val | 380 | 385 | 390 |
| Asp | Glu | Arg | Gly | Thr | Glu | Ala | Val | Ala | Gly | Ile | Leu | Ser | Glu | Ile | 395 | 400 | 405 |
| Thr | Ala | Tyr | Ser | Met | Pro | Pro | Val | Ile | Lys | Val | Asp | Arg | Pro | Phe | 410 | 415 | 420 |
| His | Phe | Met | Ile | Tyr | Glu | Glu | Thr | Ser | Gly | Met | Leu | Leu | Phe | Leu | 425 | 430 | 435 |
| Gly | Arg | Val | Val | Asn | Pro | Thr | Leu | Leu | | | | | | | 440 | | |

<210> 411
 <211> 636
 <212> DNA
 <213> Homo sapiens

<400> 411
 ctgggatcag ccactgcagc tccctgagca ctctctacag agacgcggac 50
 cccagacatg aggaggctcc tcttggtcac cagcctggtg gttgtgctgc 100
 tgtgggaggc aggtgcagtc ccagcaccga aggtccctat caagatgcaa 150
 gtcaaactact ggccctcaga gcaggaccca gagaaggcct ggggcgccc 200
 tgtggtggag cctccggaga aggacgacca gctggtggtg ctgttccctg 250
 tccagaagcc gaaactcttg accaccgagg agaagccacg aggtcagggc 300
 aggggccccca tccttccagg caccaaggcc tggatggaga ccgaggacac 350
 cctgggccgt gtcttgagtc ccgagcccga ccatgacagc ctgtaccacc 400
 ctccgcctga ggaggaccag ggcgaggaga ggccccggtt gtgggtgatg 450
 ccaaatacc aggtgctcct gggaccggag gaagaccaag accacatcta 500
 ccacccccag tagggctcca ggggccatca ctgccccgc cctgtcccaa 550
 ggcccaggct gttgggactg ggaccctccc taccctgcc cagctagaca 600

aataaaccccc agcaggcaaaa aaaaaaaaaa aaaaaa 636

<210> 412
<211> 151
<212> PRT
<213> Homo sapiens

<400> 412
Met Arg Arg Leu Leu Leu Val Thr Ser Leu Val Val Val Leu Leu
1 5 10 15
Trp Glu Ala Gly Ala Val Pro Ala Pro Lys Val Pro Ile Lys Met
20 25 30
Gln Val Lys His Trp Pro Ser Glu Gln Asp Pro Glu Lys Ala Trp
35 40 45
Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp Asp Gln Leu Val
50 55 60
Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr Thr Glu Glu
65 70 75
Lys Pro Arg Gly Gln Gly Arg Gly Pro Ile Leu Pro Gly Thr Lys
80 85 90
Ala Trp Met Glu Thr Glu Asp Thr Leu Gly Arg Val Leu Ser Pro
95 100 105
Glu Pro Asp His Asp Ser Leu Tyr His Pro Pro Pro Glu Glu Asp
110 115 120
Gln Gly Glu Glu Arg Pro Arg Leu Trp Val Met Pro Asn His Gln
125 130 135
Val Leu Leu Gly Pro Glu Glu Asp Gln Asp His Ile Tyr His Pro
140 145 150
Gln

<210> 413
<211> 1176
<212> DNA
<213> Homo sapiens

<400> 413
agaaagctgc actctgttga gctccagggc gcagtggagg gagggagtga 50
aggagctctc tgtaccaag gaaagtgcag ctgagactca gacaagatta 100
caatgaacca actcagcttc ctgctgtttc tcatagcgac caccagagga 150
tgagtagac atgaggctaa tacttacttc aaggaatgga cctgttcttc 200
gtctccatct ctgccagaa gctgcaagga aatcaaagac gaatgtccta 250
gtgcatttga tggcctgtat ttctccgca ctgagaatgg tggtatctac 300
cagaccttct gtgacatgac ctctgggggt ggcggctgga ccctgggtggc 350
cagcgtgcat gagaatgaca tgcgtgggaa gtgcacggtg ggcgatcgct 400

ggtccagtca gcagggcagc aaagcagact acccagaggg ggacggcaac 450
 tgggccaact acaacacctt tggatctgca gaggcggcca cgagcgatga 500
 ctacaagaac cctggctact acgacatcca ggccaaggac ctgggcatct 550
 ggcacgtgcc caataagtcc cccatgcagc actggagaaa cagctccctg 600
 ctgaggtacc gcacggacac tggcttcctc cagacactgg gacataatct 650
 gtttggcatc taccagaaat atccagtga atatggagaa ggaaagtgtt 700
 ggactgacaa cggcccgggtg atccctgtgg tctatgattt tggcgacgcc 750
 cagaaaacag catcttatta ctcaccctat ggccagcggg aattcactgc 800
 gggatttggt cagttcaggg tatttaataa cgagagagca gccaacgcct 850
 tgtgtgctgg aatgagggtc accggatgta aactgagca tcaactgcatt 900
 ggtggaggag gatactttcc agaggccagt cccagcagt gtggagattt 950
 ttctggtttt gattggagtg gatatggaac tcatgttggg tacagcagca 1000
 gccgtgagat aactgaggca gctgtgcttc tattctatcg ttgagagttt 1050
 tgtgggaggg aaccagacc tctcctccca accatgagat cccaaggatg 1100
 gagaacaact taccagtag ctagaatgtt aatggcagaa gagaaaacaa 1150
 taaatcatat tgactcaaga aaaaaa 1176

<210> 414
 <211> 313
 <212> PRT
 <213> Homo sapiens

<400> 414
 Met Asn Gln Leu Ser Phe Leu Leu Phe Leu Ile Ala Thr Thr Arg
 1 5 10 15
 Gly Trp Ser Thr Asp Glu Ala Asn Thr Tyr Phe Lys Glu Trp Thr
 20 25 30
 Cys Ser Ser Ser Pro Ser Leu Pro Arg Ser Cys Lys Glu Ile Lys
 35 40 45
 Asp Glu Cys Pro Ser Ala Phe Asp Gly Leu Tyr Phe Leu Arg Thr
 50 55 60
 Glu Asn Gly Val Ile Tyr Gln Thr Phe Cys Asp Met Thr Ser Gly
 65 70 75
 Gly Gly Gly Trp Thr Leu Val Ala Ser Val His Glu Asn Asp Met
 80 85 90
 Arg Gly Lys Cys Thr Val Gly Asp Arg Trp Ser Ser Gln Gln Gly
 95 100 105
 Ser Lys Ala Asp Tyr Pro Glu Gly Asp Gly Asn Trp Ala Asn Tyr
 110 115 120
 Asn Thr Phe Gly Ser Ala Glu Ala Ala Thr Ser Asp Asp Tyr Lys

| | | |
|-------------------------------------|-------------------------|-----|
| 125 | 130 | 135 |
| Asn Pro Gly Tyr Tyr Asp Ile Gln Ala | Lys Asp Leu Gly Ile Trp | |
| 140 | 145 | 150 |
| His Val Pro Asn Lys Ser Pro Met Gln | His Trp Arg Asn Ser Ser | |
| 155 | 160 | 165 |
| Leu Leu Arg Tyr Arg Thr Asp Thr Gly | Phe Leu Gln Thr Leu Gly | |
| 170 | 175 | 180 |
| His Asn Leu Phe Gly Ile Tyr Gln Lys | Tyr Pro Val Lys Tyr Gly | |
| 185 | 190 | 195 |
| Glu Gly Lys Cys Trp Thr Asp Asn Gly | Pro Val Ile Pro Val Val | |
| 200 | 205 | 210 |
| Tyr Asp Phe Gly Asp Ala Gln Lys Thr | Ala Ser Tyr Tyr Ser Pro | |
| 215 | 220 | 225 |
| Tyr Gly Gln Arg Glu Phe Thr Ala Gly | Phe Val Gln Phe Arg Val | |
| 230 | 235 | 240 |
| Phe Asn Asn Glu Arg Ala Ala Asn Ala | Leu Cys Ala Gly Met Arg | |
| 245 | 250 | 255 |
| Val Thr Gly Cys Asn Thr Glu His His | Cys Ile Gly Gly Gly Gly | |
| 260 | 265 | 270 |
| Tyr Phe Pro Glu Ala Ser Pro Gln Gln | Cys Gly Asp Phe Ser Gly | |
| 275 | 280 | 285 |
| Phe Asp Trp Ser Gly Tyr Gly Thr His | Val Gly Tyr Ser Ser Ser | |
| 290 | 295 | 300 |
| Arg Glu Ile Thr Glu Ala Ala Val Leu | Leu Phe Tyr Arg | |
| 305 | 310 | |

<210> 415
 <211> 1281
 <212> DNA
 <213> Homo sapiens

<400> 415
 gcggagccgg cgccggctgc gcagaggagc cgctctcgcc gccgccacct 50
 cggttgaggag cccacgaggc tgccgcatcc tgccctcgga acaatgggac 100
 tcggcgcgcg aggtgcttgg gccgcgctgc tcctggggac gctgcagggtg 150
 ctagcgctgc tgggggcccgc ccatgaaagc gcagccatgg cggcatctgc 200
 aaacatagag aattctgggc ttccacacaa ctccagtgt aactcaacag 250
 agactctcca acatgtgcct tctgaccata caaatgaaac ttccaacagt 300
 actgtgaaac caccaacttc agttgcctca gactccagta atacaacggt 350
 caccaccatg aaacctacag cggcatctaa tacaacaaca ccagggatgg 400
 tctcaacaaa tatgacttct accaccttaa agtctacacc caaaacaaca 450
 agtgtttcac agaacacatc tcagatatca acatccacaa tgaccgtaac 500

ccacaatagt tcagtgacat ctgctgcttc atcagtaaca atcacaacaa 550
ctatgcattc tgaagcaaag aaaggatcaa aatttgatac tgggagcttt 600
gttggtggta ttgtattaac gctgggagtt ttatctattc tttacattgg 650
atgcaaaatg tattactcaa gaagaggcat tcggtatcga accatagatg 700
aacatgatgc catcatttaa ggaaatccat ggaccaagga tggaatacag 750
attgatgctg ccctatcaat taattttggt ttattaatag tttaaaacaa 800
tattctcttt ttgaaaatag tataaacagg ccatgcatat aatgtacagt 850
gtattacgta aatatgtaaa gattcttcaa ggtaacaagg gtttgggttt 900
tgaaataaac atctggatct tatagaccgt tcatacaatg gttttagcaa 950
gttcatagta agacaaacaa gtcctatctt ttttttttgg ctgggggtggg 1000
ggcattggtc acatatgacc agtaattgaa agacgtcatc actgaaagac 1050
agaatgccat ctgggcatac aaataagaag tttgtcacag cactcaggat 1100
tttgggtatc ttttgtagct cacataaaga acttcagtgc ttttcagagc 1150
tggatatatc ttaattacta atgccacaca gaaattatac aatcaaacta 1200
gatctgaagc ataatttaag aaaaacatca acattttttg tgctttaaac 1250
tgtagtagtt ggtctagaaa caaaatactc c 1281

<210> 416
<211> 208
<212> PRT
<213> Homo sapiens

<400> 416
Met Gly Leu Gly Ala Arg Gly Ala Trp Ala Ala Leu Leu Leu Gly
1 5 10 15
Thr Leu Gln Val Leu Ala Leu Leu Gly Ala Ala His Glu Ser Ala
20 25 30
Ala Met Ala Ala Ser Ala Asn Ile Glu Asn Ser Gly Leu Pro His
35 40 45
Asn Ser Ser Ala Asn Ser Thr Glu Thr Leu Gln His Val Pro Ser
50 55 60
Asp His Thr Asn Glu Thr Ser Asn Ser Thr Val Lys Pro Pro Thr
65 70 75
Ser Val Ala Ser Asp Ser Ser Asn Thr Thr Val Thr Thr Met Lys
80 85 90
Pro Thr Ala Ala Ser Asn Thr Thr Thr Pro Gly Met Val Ser Thr
95 100 105
Asn Met Thr Ser Thr Thr Leu Lys Ser Thr Pro Lys Thr Thr Ser
110 115 120
Val Ser Gln Asn Thr Ser Gln Ile Ser Thr Ser Thr Met Thr Val

| | | |
|-------------------------------------|---------------------|-----|
| 125 | 130 | 135 |
| Thr His Asn Ser Ser Val Thr Ser Ala | Ala Ser Ser Val Thr | Ile |
| 140 | 145 | 150 |
| Thr Thr Thr Met His Ser Glu Ala Lys | Lys Gly Ser Lys Phe | Asp |
| 155 | 160 | 165 |
| Thr Gly Ser Phe Val Gly Gly Ile Val | Leu Thr Leu Gly Val | Leu |
| 170 | 175 | 180 |
| Ser Ile Leu Tyr Ile Gly Cys Lys Met | Tyr Tyr Ser Arg Arg | Gly |
| 185 | 190 | 195 |
| Ile Arg Tyr Arg Thr Ile Asp Glu His | Asp Ala Ile Ile | |
| 200 | 205 | |

<210> 417
 <211> 1728
 <212> DNA
 <213> Homo sapiens

<400> 417
 cagccgggtc ccaagcctgt gcctgagcct gagcctgagc ctgagcccca 50
 gccgggagcc ggtcgcgggg gtcctgggct gtgggaccgc tgggccccca 100
 gcgatggcga ccctgtgggg aggccttctt cggcttggtt ccttgctcag 150
 cctgtcgtgc ctggcgcttt ccgtgctgct gctggcgag ctgtcagacg 200
 ccgccaagaa tttcgaggat gtcagatgta aatgtatctg ccctccctat 250
 aaagaaaatt ctgggcatat ttataataag aacatatctc agaaagattg 300
 tgattgcctt catgttgtgg agcccatgcc tgtgcggggg cctgatgtag 350
 aagcatactg tctacgctgt gaatgcaaat atgaagaaag aagctctgtc 400
 acaatcaagg ttaccattat aatttatctc tccatttttg gccttctact 450
 tctgtacatg gtatatctta ctctggttga gcccactactg aagaggcgcc 500
 tcttttgaca tgcacagttg atacagagtg atgatgatat tggggatcac 550
 cagccttttg caaatgcaca cgatgtgcta gcccgctccc gcagtcgagc 600
 caacgtgctg aacaaggtag aatatgcaca gcagcgctgg aagcttcaag 650
 tccaagagca gcgaaagtct gtctttgacc ggcatgttgt cctcagctaa 700
 ttgggaattg aattcaagggt gactagaaag aaacaggcag acaactggaa 750
 agaactgact gggttttgct gggtttcatt ttaatacctt gttgatttca 800
 ccaactgttg ctggaagatt caaaactgga agcaaaaact tgcttgattt 850
 tttttttctg ttaacgtaat aatagagaca tttttaaaag cacacagctc 900
 aaagtcagcc aataagtctt ttcctatttg tgacttttac taataaaaaat 950
 aaatctgcct gttaaattatc ttgaagtcct ttacctggaa caagcactct 1000

ctttttcacc acatagtttt aacttgactt tcaagataat tttcaggggtt 1050
 tttgttggtg ttgttttttg tttgtttggt ttggtgggag aggggagggg 1100
 tgcctgggaa gtggttaaca acttttttca agtcacttta ctaaacaac 1150
 ttttgtaaag agaccttacc ttctattttc gagtttcatt tatattttgc 1200
 agtgtagcca gcctcatcaa agagctgact tactcatttg acttttgcac 1250
 tgactgtatt atctgggtat ctgctgtgtc tgcacttcat ggtaaacggg 1300
 atctaaaatg cctggtggct tttcacaaaa agcagatttt cttcatgtac 1350
 tgtgatgtct gatgcaatgc atcctagaac aaactggcca tttgctagtt 1400
 tactctaaag actaaacata gtcttggtgt gtgtggtcct actcatcttc 1450
 tagtaccttt aaggacaaat cctaaggact tggacacttg caataaagaa 1500
 attttatttt aaaccaagc ctccctggat tgataatata tacacatttg 1550
 tcagcatttc cggtcgtggt gagaggcagc tgtttgagct ccaatatgtg 1600
 cagctttgaa ctagggtggt ggttgtgggt gcctcttctg aaaggtctaa 1650
 ccattattgg ataactggct tttttcttcc tatgtcctct ttggaatgta 1700
 acaataaaaa taatttttga aacatcaa 1728

<210> 418
 <211> 198
 <212> PRT
 <213> Homo sapiens

<400> 418
 Met Ala Thr Leu Trp Gly Gly Leu Leu Arg Leu Gly Ser Leu Leu
 1 5 10 15
 Ser Leu Ser Cys Leu Ala Leu Ser Val Leu Leu Leu Ala Gln Leu
 20 25 30
 Ser Asp Ala Ala Lys Asn Phe Glu Asp Val Arg Cys Lys Cys Ile
 35 40 45
 Cys Pro Pro Tyr Lys Glu Asn Ser Gly His Ile Tyr Asn Lys Asn
 50 55 60
 Ile Ser Gln Lys Asp Cys Asp Cys Leu His Val Val Glu Pro Met
 65 70 75
 Pro Val Arg Gly Pro Asp Val Glu Ala Tyr Cys Leu Arg Cys Glu
 80 85 90
 Cys Lys Tyr Glu Glu Arg Ser Ser Val Thr Ile Lys Val Thr Ile
 95 100 105
 Ile Ile Tyr Leu Ser Ile Leu Gly Leu Leu Leu Leu Tyr Met Val
 110 115 120
 Tyr Leu Thr Leu Val Glu Pro Ile Leu Lys Arg Arg Leu Phe Gly
 125 130 135

tgaattctac agtcttggtg aagaacacga agaagactaa tccagagata 1050
 aaagaaaaac cctgccattt tgaaagatgt gaaggggaga aacacattta 1100
 ctccccaata attgtacggg aggtgatcga ggaagaagaa ccaagtgaaa 1150
 aatcagaggc cacctacatg accatgcacc cagtttggcc ttctctgagg 1200
 tcagatcgga acaactcact tgaaaaaaag tcaggtgggg gaatgccaaa 1250
 aacacagcaa gccttttgag aagaatggag agtcccttca tctcagcagc 1300
 ggtggagact ctctcctgtg tgtgtcctgg gccactctac cagtgatttc 1350
 agactcccg c tctcccagct gtctcctgt ctcatgttt ggtcaatata 1400
 ctgaagatgg agaatttgga gcctggcaga gagactggac agctctggag 1450
 gaacaggcct gctgagggga ggggagcatg gacttggcct ctggagtggg 1500
 aactggccc tgggaaccag gctgagctga gtggcctcaa accccccgtt 1550
 ggatcagacc ctctgtggg cagggttctt agtggatgag ttactgggaa 1600
 gaatcagaga taaaaaccaa cccaaatcaa 1630

<210> 422
 <211> 394
 <212> PRT
 <213> Homo sapiens

<400> 422
 Met Phe Cys Pro Leu Lys Leu Ile Leu Leu Pro Val Leu Leu Asp
 1 5 10 15
 Tyr Ser Leu Gly Leu Asn Asp Leu Asn Val Ser Pro Pro Glu Leu
 20 25 30
 Thr Val His Val Gly Asp Ser Ala Leu Met Gly Cys Val Phe Gln
 35 40 45
 Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr Leu Ser
 50 55 60
 Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr Ser
 65 70 75
 Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg Val His Leu
 80 85 90
 Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Leu Gln Asp
 95 100 105
 Val Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg Leu
 110 115 120
 Lys Gly Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val
 125 130 135
 Leu Pro Glu Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu
 140 145 150
 Ile Gln Met Gly Cys Val Phe Gln Ser Thr Glu Val Lys His Val

| | 155 | 160 | 165 |
|---|-----|-----|-----|
| Thr Lys Val Glu Trp Ile Phe Ser Gly Arg Arg Ala Lys Glu Glu | 170 | 175 | 180 |
| Ile Val Phe Arg Tyr Tyr His Lys Leu Arg Met Ser Val Glu Tyr | 185 | 190 | 195 |
| Ser Gln Ser Trp Gly His Phe Gln Asn Arg Val Asn Leu Val Gly | 200 | 205 | 210 |
| Asp Ile Phe Arg Asn Asp Gly Ser Ile Met Leu Gln Gly Val Arg | 215 | 220 | 225 |
| Glu Ser Asp Gly Gly Asn Tyr Thr Cys Ser Ile His Leu Gly Asn | 230 | 235 | 240 |
| Leu Val Phe Lys Lys Thr Ile Val Leu His Val Ser Pro Glu Glu | 245 | 250 | 255 |
| Pro Arg Thr Leu Val Thr Pro Ala Ala Leu Arg Pro Leu Val Leu | 260 | 265 | 270 |
| Gly Gly Asn Gln Leu Val Ile Ile Val Gly Ile Val Cys Ala Thr | 275 | 280 | 285 |
| Ile Leu Leu Leu Pro Val Leu Ile Leu Ile Val Lys Lys Thr Cys | 290 | 295 | 300 |
| Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu Val Lys Asn Thr | 305 | 310 | 315 |
| Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys His Phe Glu | 320 | 325 | 330 |
| Arg Cys Glu Gly Glu Lys His Ile Tyr Ser Pro Ile Ile Val Arg | 335 | 340 | 345 |
| Glu Val Ile Glu Glu Glu Glu Pro Ser Glu Lys Ser Glu Ala Thr | 350 | 355 | 360 |
| Tyr Met Thr Met His Pro Val Trp Pro Ser Leu Arg Ser Asp Arg | 365 | 370 | 375 |
| Asn Asn Ser Leu Glu Lys Lys Ser Gly Gly Gly Met Pro Lys Thr | 380 | 385 | 390 |
| Gln Gln Ala Phe | | | |

<210> 423

<211> 963

<212> DNA

<213> Homo sapiens

<400> 423

ctatgaagaa gcttcctgga aaacaataag caaaggaaaa caaatgtgtc 50

ccatctcaca tggttctacc ctactaaaga caggaagatc ataaactgac 100

agatactgaa attgtaagag ttggaaacta cattttgcaa agtcattgaa 150

ctctgagctc agttgcagta ctcggaagc catgcaggat gaagatggat 200

acatcacctt aatatataaa actcggaaac cagctctcgt ctccgttggc 250
 cctgcatcct cctcctggtg gcgtgtgatg gctttgattc tgctgatcct 300
 gtgcgtgggg atggttgtcg ggctggtggc tctggggatt tgggtctgtca 350
 tgcagcgcaa ttacctacaa gatgagaatg aaaatcgcac aggaactctg 400
 caacaattag caaagcgctt ctgtcaatat gtggtaaaac aatcagaact 450
 aaagggcact ttcaaaggtc ataaatgcag cccctgtgac acaaactgga 500
 gatattatgg agatagctgc tatgggttct tcaggcaciaa cttaacatgg 550
 gaagagagta agcagtactg cactgacatg aatgctactc tcctgaagat 600
 tgacaaccgg aacattgtgg agtacatcaa agccaggact catttaattc 650
 gttgggtcgg attatctcgc cagaagtcga atgaggtctg gaagtgggag 700
 gatggctcgg ttatctcaga aaatatgttt gagtttttgg aagatggaaa 750
 aggaaatatg aattgtgctt attttcataa tgggaaaatg caccctacct 800
 tctgtgagaa caaacattat ttaatgtgtg agaggaaggc tggcatgacc 850
 aaggtggacc aactacctta atgcaaagag gtggacagga taacacagat 900
 aagggtttta ttgtacaata aaagatatgt atgaatgcat cagtagctga 950
 aaaaaaaaaa aaa 963

<210> 424
 <211> 229
 <212> PRT
 <213> Homo sapiens

<400> 424
 Met Gln Asp Glu Asp Gly Tyr Ile Thr Leu Asn Ile Lys Thr Arg
 1 5 10 15
 Lys Pro Ala Leu Val Ser Val Gly Pro Ala Ser Ser Ser Trp Trp
 20 25 30
 Arg Val Met Ala Leu Ile Leu Leu Ile Leu Cys Val Gly Met Val
 35 40 45
 Val Gly Leu Val Ala Leu Gly Ile Trp Ser Val Met Gln Arg Asn
 50 55 60
 Tyr Leu Gln Asp Glu Asn Glu Asn Arg Thr Gly Thr Leu Gln Gln
 65 70 75
 Leu Ala Lys Arg Phe Cys Gln Tyr Val Val Lys Gln Ser Glu Leu
 80 85 90
 Lys Gly Thr Phe Lys Gly His Lys Cys Ser Pro Cys Asp Thr Asn
 95 100 105
 Trp Arg Tyr Tyr Gly Asp Ser Cys Tyr Gly Phe Phe Arg His Asn
 110 115 120
 Leu Thr Trp Glu Glu Ser Lys Gln Tyr Cys Thr Asp Met Asn Ala

<400> 428
 ccaccaatgg cagccccacc t 21
 <210> 429
 <211> 17
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic oligonucleotide probe
 <400> 429
 gactgccctc cctgcca 17
 <210> 430
 <211> 24
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic oligonucleotide probe
 <400> 430
 caaaaagcct ggaagtcttc aaag 24
 <210> 431
 <211> 20
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic oligonucleotide probe
 <400> 431
 cagctggact gcaggtgcta 20
 <210> 432
 <211> 22
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic oligonucleotide probe
 <400> 432
 cagtgagcac agcaagtgtc ct 22
 <210> 433
 <211> 28
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic oligonucleotide probe
 <400> 433
 ggccacctcc ttgagtcttc agttccct 28
 <210> 434
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

 <400> 434
 caactactgg ctaaagctgg tgaa 24

 <210> 435
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 435
 cctttctgta taggtgatac ccaatga 27

 <210> 436
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 436
 tggccatccc taccagaggc aaaa 24

 <210> 437
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 437
 ctgaagacga cgcggttac ta 22

 <210> 438
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 438
 ggcagaaatg ggaggcaga 19

 <210> 439
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 439
 tgctctgttg gctacggctt tagtcctag 30

 <210> 440
 <211> 22

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 440
 agcagcagcc atgtagaatg aa 22

 <210> 441
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 441
 aatacgaaca gtgcacgctg at 22

 <210> 442
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 442
 tccagagagc caagcacggc aga 23

 <210> 443
 <211> 22
 <212> DNA
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 <220>
 <223> Synthetic oligonucleotide probe

 <400> 443
 tctagccagc ttggctccaa ta 22

 <210> 444
 <211> 23
 <212> DNA
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 <220>
 <223> Synthetic oligonucleotide probe

 <400> 444
 cctggctcta gcaccaactc ata 23

 <210> 445
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 <212> DNA
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 <220>
 <223> Synthetic oligonucleotide probe

 <400> 445
 tcagtggccc taaggagatg ggcct 25

<210> 446
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 446
 caggatacag tgggaatctt gaga 24

 <210> 447
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 447
 cctgaagggc ttggagctta gt 22

 <210> 448
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 448
 tctttggcca tttcccatgg ctca 24

 <210> 449
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 449
 cccatggcga ggaggaat 18

 <210> 450
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 450
 tgcgtacgtg tgccttcag 19

 <210> 451
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

<400> 451
 cagcacccca ggcagtctgt gtgt 24

 <210> 452
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 452
 aacgtgctac acgaccagtg tact 24

 <210> 453
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 453
 cacagcatat tcagatgact aaatcca 27

 <210> 454
 <211> 31
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 454
 ttgttttagtt ctccaccgtg tctccacaga a 31

 <210> 455
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 455
 tgtcagaatg caacctggct t 21

 <210> 456
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 456
 tgatgtgcct ggctcagaac 20

 <210> 457
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

 <400> 457
 tgcacctaga tgtccccagc accc 24

 <210> 458
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 458
 aagatgcgcc aggcttctta 20

 <210> 459
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 459
 ctctgtacg gtctgtcac ttat 24

 <210> 460
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 460
 tggctgtcag tccagtgtgc atgg 24

 <210> 461
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 461
 gcatagggat agataagatc ctgctttat 29

 <210> 462
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 462
 caaattaaag tacccatcag gagagaa 27

 <210> 463
 <211> 37

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<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 463
aagttgctaa atatatacat tatctgcgcc aagtcca 37

<210> 464
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 464
gtgctgcca caattcatga 20

<210> 465
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 465
gtccttggtgta tgggtctgaa ttatat 26

<210> 466
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 466
actctctgca cccacagtc accactatct c 31

<210> 467
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 467
ctgaggaacc agccatgtct ct 22

<210> 468
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 468
gaccagatgc aggtacagga tga 23

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<210> 469
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 469
 ctgcccccttc agtgatgcca acctt 25

 <210> 470
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 470
 ggggtggaggc tcactgagta ga 22

 <210> 471
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 471
 caatacagggt aatgaaactc tgcttctt 28

 <210> 472
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 472
 toctcttaag cataggccat tttctcagtt tagaca 36

 <210> 473
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 473
 ggtggtcttg cttggtctca c 21

 <210> 474
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

<400> 474
 ccgtcgttca gcaacatgac 20

 <210> 475
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 475
 accgcctacc gctgtgccca 20

 <210> 476
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 476
 cagtaaaacc acaggctgga ttt 23

 <210> 477
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 477
 cctgagagca agaaggttga gaat 24

 <210> 478
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 478
 tagacaggga ccatggcccg ca 22

 <210> 479
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 479
 tgggctgtag aagagttgtt g 21

 <210> 480
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic oligonucleotide probe

 <400> 480
 tccacacttg gccagtttat 20

 <210> 481
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 481
 cccaacttct cccttttgga ccct 24

 <210> 482
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 482
 gtcccttcac tgttttagagc atga 24

 <210> 483
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 483
 actctccccc tcaacagcct cctgag 26

 <210> 484
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 484
 gtggtcaggg cagatccttt 20

 <210> 485
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 485
 acagatccag gagagactcc aca 23

 <210> 486
 <211> 21

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 486
 agcggcgctc ccagcctgaa t 21

 <210> 487
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 487
 catgattggg cctcagttcc atc 23

 <210> 488
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 488
 atagaggggct cccagaagtg 20

 <210> 489
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 489
 cagggccttc agggccttca c 21

 <210> 490
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 490
 gctcagccaa acactgtca 19

 <210> 491
 <211> 17
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic oligonucleotide probe

 <400> 491
 ggggccctga cagtgtt 17

<210> 492
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 492
ctgagccgag actggagcat ctacac 26

<210> 493
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 493
gtgggcagcg tcttgtc 17

<210> 494
<211> 1231
<212> DNA
<213> Homo Sapien

<400> 494
cccacgcgtc cgcgcagtcg cgcagttctg cctccgcctg ccagtctcgc 50
ccgcgatccc ggcccggggc tgtggcgctg actccgaccc aggcagccag 100
cagcccgcgc gggagccgga ccgccgccg aggagctcgg acggcatgct 150
gagccccctc ctttgctgaa gcccgagtgc ggagaagccc gggcaaacgc 200
aggctaagga gaccaaagcg gcgaagtcgc gagacagcgg acaagcagcg 250
gaggagaagg aggaggaggc gaaccagag aggggcagca aaagaagcgg 300
tggtggtggg cgtcgtggcc atggcggcgg ctatcgccag ctcgctcatc 350
cgtcagaaga ggcaagcccg cgagcgcgag aaatccaacg cctgcaagtg 400
tgtcagcagc cccagcaaag gcaagaccag ctgcgacaaa aacaagttaa 450
atgtottttc ccgggtcaaa ctcttcggct ccaagaagag gcgcagaaga 500
agaccagagc ctcagcttaa gggatatgtt accaagctat acagccgaca 550
aggctaccac ttgcagctgc aggcggatgg aaccattgat ggcaccaaag 600
atgaggacag cacttacact ctgtttaacc tcatccctgt gggctctgga 650
gtggtggcta tccaaggagt tcaaaccaag ctgtacttgg caatgaacag 700
tgagggatac ttgtacacct cggaactttt cacacctgag tgcaaattca 750
aagaatcagt gtttgaaaat tattatgtga catattcatc aatgatatac 800
cgtcagcagc agtcaggccg aggggtggtat ctgggtctga acaaagaagg 850
agagatcatg aaaggcaacc atgtgaagaa gaacaagcct gcagctcatt 900

| | | | | | |
|---------------------|---|--|-----|--|-----|
| | 215 | | 220 | | 225 |
| Ser Arg Ser Val | Ser Gly Val Leu Asn Gly Gly Lys Ser Met Ser | | | | |
| | 230 | | 235 | | 240 |
| His Asn Glu Ser Thr | | | | | |
| | 245 | | | | |

<210> 496
 <211> 1471
 <212> DNA
 <213> Homo Sapien

<400> 496
 ccaggatgga gctggggcct gtatagccat attattgttc tatgctacta 50
 gacatggggg ggacttggtg aaaaaggtat tatccagcca gagggctctgg 100
 gagccctgtc ttactgaacc tgggcaacct ggatattctg agacatatatt 150
 tgggggggatt tcagtgaaaa aagtggggga tcccctccat ttagagtgtg 200
 gcaaaggaaa aaacaccaag gttgggttcc ttctgacat tggcagtgcc 250
 ccagtagggg tgggatgagc gaattattccc aaagctaaag tcccacaccc 300
 tgtagattac aagagtggat ttggcaggag tgtgccccaa aatacagtgg 350
 aaaggtgcct gaagatatatt aaaccacgtc ttggaaattt agtgggtctt 400
 ggctttggga taggtgaagt gaggacagac actggagagg agggaaaggg 450
 gacgttttca ataggaggca aaactcgagg gtgggatcca ctgaggagta 500
 cataggctgc tggatctggt ggagccagca ctggggccac ggggtggtaac 550
 tggctgctgt ggaggggggt acgtgagggg ggggtctggg gcttatcctc 600
 aggtcctgtg ggtggggcag cgagtcgggg cctgagcgtc aagagcatgc 650
 cctagtgagc gggctcctct gggggagccc agcgcgctcc gggcgctgc 700
 cggtttgggg gtgtctcctc ccggggcgct atggcgggcg tggccagtag 750
 cctgatccgg cagaagcggg aggtccgcga gcccgggggc agccggccgg 800
 tgtcggcgca gcggcgctg tgtccccgcg gcaccaagtc cctttgccag 850
 aagcagctcc tcacctctgt gtccaaggtg cgactgtgag gggggcggcc 900
 cgcgcgggcc gaccgcggcc cggagcctca gctcaaaggc atcgtcacca 950
 aactgttctg ccgccagggt ttctacctcc aggogaatcc cgacggaagc 1000
 atccagggca cccagagga taccagctcc ttcacccact tcaacctgat 1050
 ccctgtgggc ctccgtgtg tcaccatcca gagcgccaag ctgggtcact 1100
 acatggccat gaatgctgag ggactgctct acagttcgcc gcatttcaca 1150
 gctgagtgtc gctttaagga gtgtgtcttt gagaattact acgtcctgta 1200
 cgcctctgct ctctaccgcc agcgtcgttc tggccggggc tggtaacctg 1250

gcctggacaa ggagggccag gtcatgaagg gaaaccgagt taagaagacc 1300
aaggcagctg cccactttct gcccaagctc ctggaggtgg ccatgtacca 1350
ggagccttct ctccacagtg tccccgaggc ctcccccttc agtccccctg 1400
ccccctgaaa tgtagtcctt ggactggagg ttccctgcac tcccagtgag 1450
ccagccacca ccacaacctg t 1471

<210> 497
<211> 225
<212> PRT
<213> Homo Sapien

<400> 497

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ala | Ala | Leu | Ala | Ser | Ser | Leu | Ile | Arg | Gln | Lys | Arg | Glu | Val | 1 | 5 | 10 | 15 |
| Arg | Glu | Pro | Gly | Gly | Ser | Arg | Pro | Val | Ser | Ala | Gln | Arg | Arg | Val | 20 | 25 | 30 | |
| Cys | Pro | Arg | Gly | Thr | Lys | Ser | Leu | Cys | Gln | Lys | Gln | Leu | Leu | Ile | 35 | 40 | 45 | |
| Leu | Leu | Ser | Lys | Val | Arg | Leu | Cys | Gly | Gly | Arg | Pro | Ala | Arg | Pro | 50 | 55 | 60 | |
| Asp | Arg | Gly | Pro | Glu | Pro | Gln | Leu | Lys | Gly | Ile | Val | Thr | Lys | Leu | 65 | 70 | 75 | |
| Phe | Cys | Arg | Gln | Gly | Phe | Tyr | Leu | Gln | Ala | Asn | Pro | Asp | Gly | Ser | 80 | 85 | 90 | |
| Ile | Gln | Gly | Thr | Pro | Glu | Asp | Thr | Ser | Ser | Phe | Thr | His | Phe | Asn | 95 | 100 | 105 | |
| Leu | Ile | Pro | Val | Gly | Leu | Arg | Val | Val | Thr | Ile | Gln | Ser | Ala | Lys | 110 | 115 | 120 | |
| Leu | Gly | His | Tyr | Met | Ala | Met | Asn | Ala | Glu | Gly | Leu | Leu | Tyr | Ser | 125 | 130 | 135 | |
| Ser | Pro | His | Phe | Thr | Ala | Glu | Cys | Arg | Phe | Lys | Glu | Cys | Val | Phe | 140 | 145 | 150 | |
| Glu | Asn | Tyr | Tyr | Val | Leu | Tyr | Ala | Ser | Ala | Leu | Tyr | Arg | Gln | Arg | 155 | 160 | 165 | |
| Arg | Ser | Gly | Arg | Ala | Trp | Tyr | Leu | Gly | Leu | Asp | Lys | Glu | Gly | Gln | 170 | 175 | 180 | |
| Val | Met | Lys | Gly | Asn | Arg | Val | Lys | Lys | Thr | Lys | Ala | Ala | Ala | His | 185 | 190 | 195 | |
| Phe | Leu | Pro | Lys | Leu | Leu | Glu | Val | Ala | Met | Tyr | Gln | Glu | Pro | Ser | 200 | 205 | 210 | |
| Leu | His | Ser | Val | Pro | Glu | Ala | Ser | Pro | Ser | Ser | Pro | Pro | Ala | Pro | 215 | 220 | 225 | |

<210> 498
<211> 744

<212> DNA
 <213> Homo Sapien

<400> 498
 atggccgcgg ccacgcctag cggcttgatc cgccagaagc ggcagggcgg 50
 ggagcagcac tgggaccggc cgtctgccag caggaggcgg agcagcccca 100
 gcaagaaccg cgggctctgc aacggcaacc tggatgatat cttctccaaa 150
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 gctcaagggg atagtgacca gggtatattg caggcaaggc tactacttgc 250
 aaatgcaccc cgatggagct ctcatgggaa ccaaggatga cagcactaat 300
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 tggtagagcc tggtttttgg gattaaataa ggaagggcaa gctatgaaag 550
 ggaacagagt aaagaaaacc aaaccagcag ctcatcttct acccaagcca 600
 ttggaagttg ccatgtaccg agaaccatct ttgcatgatg ttggggaaac 650
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 <211> 247
 <212> PRT
 <213> Homo Sapien

<400> 499
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 Ser Ser Pro Ser Lys Asn Arg Gly Leu Cys Asn Gly Asn Leu Val
 35 40 45
 Asp Ile Phe Ser Lys Val Arg Ile Phe Gly Leu Lys Lys Arg Arg
 50 55 60
 Leu Arg Arg Gln Asp Pro Gln Leu Lys Gly Ile Val Thr Arg Leu
 65 70 75
 Tyr Cys Arg Gln Gly Tyr Tyr Leu Gln Met His Pro Asp Gly Ala
 80 85 90
 Leu Asp Gly Thr Lys Asp Asp Ser Thr Asn Ser Thr Leu Phe Asn
 95 100 105
 Leu Ile Pro Val Gly Leu Arg Val Val Ala Ile Gln Gly Val Lys
 110 115 120

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Gly | Leu | Tyr | Ile | Ala | Met | Asn | Gly | Glu | Gly | Tyr | Leu | Tyr | Pro |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Ser | Glu | Leu | Phe | Thr | Pro | Glu | Cys | Lys | Phe | Lys | Glu | Ser | Val | Phe |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Glu | Asn | Tyr | Tyr | Val | Ile | Tyr | Ser | Ser | Met | Leu | Tyr | Arg | Gln | Gln |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Glu | Ser | Gly | Arg | Ala | Trp | Phe | Leu | Gly | Leu | Asn | Lys | Glu | Gly | Gln |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Ala | Met | Lys | Gly | Asn | Arg | Val | Lys | Lys | Thr | Lys | Pro | Ala | Ala | His |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Phe | Leu | Pro | Lys | Pro | Leu | Glu | Val | Ala | Met | Tyr | Arg | Glu | Pro | Ser |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Leu | His | Asp | Val | Gly | Glu | Thr | Val | Pro | Lys | Pro | Gly | Val | Thr | Pro |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Ser | Lys | Ser | Thr | Ser | Ala | Ser | Ala | Ile | Met | Asn | Gly | Gly | Lys | Pro |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Asn | Lys | Ser | Lys | Thr | Thr | | | | | | | | |
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 <211> 2906
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 tggaaccgaa cgcaatggat aaactgattg tgcaagagag aaggaagaac 150
 gaagctttttt cttgtgagcc ctggatctta acacaaatgt gtatatgtgc 200
 acacagggag cattcaagaa tgaaataaac cagagttaga cccgcggggg 250
 ttggtgtggt ctgacataaa taaataatct taaagcagct gttccctcc 300
 ccacccccaa aaaaaaggat gattggaaat gaagaaccga ggattcaca 350
 agaaaaaagt atgttcattt ttctctataa aggagaaagt gagccaagga 400
 gatatttttg gaatgaaaag tttggggcct ttttagtaaa gtaaagaact 450
 ggtgtggtgg tgttttctt tctttttgaa tttccacaa gaggagagga 500
 aattaataat acatctgcaa agaaatttca gagaagaaaa gttgaccgcg 550
 gcagattgag gcattgattg ggggagagaa accagcagag cacagttgga 600
 tttgtgccta tgttgactaa aattgacgga taattgcagt tggatttttc 650
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 atgcgttttc tctgttctt aaccacctgg atttccatct ggatgttgct 750

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 tgactgggct aaatctactg tttcaaaaaa gtgtctttac aaaaaaacia 2850
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 caaaaa 2906

<210> 501
 <211> 640
 <212> PRT
 <213> Homo Sapien

<400> 501
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 Leu Ala Leu Gln Leu Leu Val Val Ala Gly Leu Val Arg Ala Gln
 35 40 45
 Thr Cys Pro Ser Val Cys Ser Cys Ser Asn Gln Phe Ser Lys Val
 50 55 60
 Ile Cys Val Arg Lys Asn Leu Arg Glu Val Pro Asp Gly Ile Ser
 65 70 75
 Thr Asn Thr Arg Leu Leu Asn Leu His Glu Asn Gln Ile Gln Ile
 80 85 90
 Ile Lys Val Asn Ser Phe Lys His Leu Arg His Leu Glu Ile Leu
 95 100 105
 Gln Leu Ser Arg Asn His Ile Arg Thr Ile Glu Ile Gly Ala Phe
 110 115 120
 Asn Gly Leu Ala Asn Leu Asn Thr Leu Glu Leu Phe Asp Asn Arg
 125 130 135
 Leu Thr Thr Ile Pro Asn Gly Ala Phe Val Tyr Leu Ser Lys Leu
 140 145 150
 Lys Glu Leu Trp Leu Arg Asn Asn Pro Ile Glu Ser Ile Pro Ser
 155 160 165

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ala | Phe | Asn | Arg | Ile | Pro | Ser | Leu | Arg | Arg | Leu | Asp | Leu | Gly | 170 | 175 | 180 |
| Glu | Leu | Lys | Arg | Leu | Ser | Tyr | Ile | Ser | Glu | Gly | Ala | Phe | Glu | Gly | 185 | 190 | 195 |
| Leu | Ser | Asn | Leu | Arg | Tyr | Leu | Asn | Leu | Ala | Met | Cys | Asn | Leu | Arg | 200 | 205 | 210 |
| Glu | Ile | Pro | Asn | Leu | Thr | Pro | Leu | Ile | Lys | Leu | Asp | Glu | Leu | Asp | 215 | 220 | 225 |
| Leu | Ser | Gly | Asn | His | Leu | Ser | Ala | Ile | Arg | Pro | Gly | Ser | Phe | Gln | 230 | 235 | 240 |
| Gly | Leu | Met | His | Leu | Gln | Lys | Leu | Trp | Met | Ile | Gln | Ser | Gln | Ile | 245 | 250 | 255 |
| Gln | Val | Ile | Glu | Arg | Asn | Ala | Phe | Asp | Asn | Leu | Gln | Ser | Leu | Val | 260 | 265 | 270 |
| Glu | Ile | Asn | Leu | Ala | His | Asn | Asn | Leu | Thr | Leu | Leu | Pro | His | Asp | 275 | 280 | 285 |
| Leu | Phe | Thr | Pro | Leu | His | His | Leu | Glu | Arg | Ile | His | Leu | His | His | 290 | 295 | 300 |
| Asn | Pro | Trp | Asn | Cys | Asn | Cys | Asp | Ile | Leu | Trp | Leu | Ser | Trp | Trp | 305 | 310 | 315 |
| Ile | Lys | Asp | Met | Ala | Pro | Ser | Asn | Thr | Ala | Cys | Cys | Ala | Arg | Cys | 320 | 325 | 330 |
| Asn | Thr | Pro | Pro | Asn | Leu | Lys | Gly | Arg | Tyr | Ile | Gly | Glu | Leu | Asp | 335 | 340 | 345 |
| Gln | Asn | Tyr | Phe | Thr | Cys | Tyr | Ala | Pro | Val | Ile | Val | Glu | Pro | Pro | 350 | 355 | 360 |
| Ala | Asp | Leu | Asn | Val | Thr | Glu | Gly | Met | Ala | Ala | Glu | Leu | Lys | Cys | 365 | 370 | 375 |
| Arg | Ala | Ser | Thr | Ser | Leu | Thr | Ser | Val | Ser | Trp | Ile | Thr | Pro | Asn | 380 | 385 | 390 |
| Gly | Thr | Val | Met | Thr | His | Gly | Ala | Tyr | Lys | Val | Arg | Ile | Ala | Val | 395 | 400 | 405 |
| Leu | Ser | Asp | Gly | Thr | Leu | Asn | Phe | Thr | Asn | Val | Thr | Val | Gln | Asp | 410 | 415 | 420 |
| Thr | Gly | Met | Tyr | Thr | Cys | Met | Val | Ser | Asn | Ser | Val | Gly | Asn | Thr | 425 | 430 | 435 |
| Thr | Ala | Ser | Ala | Thr | Leu | Asn | Val | Thr | Ala | Ala | Thr | Thr | Thr | Pro | 440 | 445 | 450 |
| Phe | Ser | Tyr | Phe | Ser | Thr | Val | Thr | Val | Glu | Thr | Met | Glu | Pro | Ser | 455 | 460 | 465 |
| Gln | Asp | Glu | Ala | Arg | Thr | Thr | Asp | Asn | Asn | Val | Gly | Pro | Thr | Pro | 470 | 475 | 480 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Val | Asp | Trp | Glu | Thr | Thr | Asn | Val | Thr | Thr | Ser | Leu | Thr | Pro | |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Gln | Ser | Thr | Arg | Ser | Thr | Glu | Lys | Thr | Phe | Thr | Ile | Pro | Val | Thr | |
| | | | | 500 | | | | | 505 | | | | | 510 | |
| Asp | Ile | Asn | Ser | Gly | Ile | Pro | Gly | Ile | Asp | Glu | Val | Met | Lys | Thr | |
| | | | | 515 | | | | | 520 | | | | | 525 | |
| Thr | Lys | Ile | Ile | Ile | Gly | Cys | Phe | Val | Ala | Ile | Thr | Leu | Met | Ala | |
| | | | | 530 | | | | | 535 | | | | | 540 | |
| Ala | Val | Met | Leu | Val | Ile | Phe | Tyr | Lys | Met | Arg | Lys | Gln | His | His | |
| | | | | 545 | | | | | 550 | | | | | 555 | |
| Arg | Gln | Asn | His | His | Ala | Pro | Thr | Arg | Thr | Val | Glu | Ile | Ile | Asn | |
| | | | | 560 | | | | | 565 | | | | | 570 | |
| Val | Asp | Asp | Glu | Ile | Thr | Gly | Asp | Thr | Pro | Met | Glu | Ser | His | Leu | |
| | | | | 575 | | | | | 580 | | | | | 585 | |
| Pro | Met | Pro | Ala | Ile | Glu | His | Glu | His | Leu | Asn | His | Tyr | Asn | Ser | |
| | | | | 590 | | | | | 595 | | | | | 600 | |
| Tyr | Lys | Ser | Pro | Phe | Asn | His | Thr | Thr | Thr | Val | Asn | Thr | Ile | Asn | |
| | | | | 605 | | | | | 610 | | | | | 615 | |
| Ser | Ile | His | Ser | Ser | Val | His | Glu | Pro | Leu | Leu | Ile | Arg | Met | Asn | |
| | | | | 620 | | | | | 625 | | | | | 630 | |
| Ser | Lys | Asp | Asn | Val | Gln | Glu | Thr | Gln | Ile | | | | | | |
| | | | | 635 | | | | | 640 | | | | | | |

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 <211> 2458
 <212> DNA
 <213> Homo Sapien

<400> 502
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 ccagctcgcc cgaggtccgt cggaggcgcc cggccgcccc ggagccaagc 150
 agcaactgag cggggaagcg cccgcgtccg gggatcgga tgtccctcct 200
 ccttctctc ttgctagttt cctactatgt tggaaccttg gggactcaca 250
 ctgagatcaa gagagtggca gaggaaaagg tcactttgcc ctgccaccat 300
 caactggggc ttccagaaaa agacactctg gatattgaat ggctgctcac 350
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 aatttctgg caggagatgc ctccttgag attgaacctc tgaagcccag 500
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 aaccaccctg gacgagttct gctgcagaat cttaccatgt cctactctgg 800
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<210> 503
<211> 373
<212> PRT
<213> Homo Sapien

<400> 503

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Leu | Leu | Leu | Leu | Leu | Leu | Leu | Val | Ser | Tyr | Tyr | Val | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Leu | Gly | Thr | His | Thr | Glu | Ile | Lys | Arg | Val | Ala | Glu | Glu | Lys |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Thr | Leu | Pro | Cys | His | His | Gln | Leu | Gly | Leu | Pro | Glu | Lys | Asp |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Thr | Leu | Asp | Ile | Glu | Trp | Leu | Leu | Thr | Asp | Asn | Glu | Gly | Asn | Gln |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Lys | Val | Val | Ile | Thr | Tyr | Ser | Ser | Arg | His | Val | Tyr | Asn | Asn | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Thr | Glu | Glu | Gln | Lys | Gly | Arg | Val | Ala | Phe | Ala | Ser | Asn | Phe | Leu |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ala | Gly | Asp | Ala | Ser | Leu | Gln | Ile | Glu | Pro | Leu | Lys | Pro | Ser | Asp |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Glu | Gly | Arg | Tyr | Thr | Cys | Lys | Val | Lys | Asn | Ser | Gly | Arg | Tyr | Val |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Trp | Ser | His | Val | Ile | Leu | Lys | Val | Leu | Val | Arg | Pro | Ser | Lys | Pro |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Lys | Cys | Glu | Leu | Glu | Gly | Glu | Leu | Thr | Glu | Gly | Ser | Asp | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Leu | Gln | Cys | Glu | Ser | Ser | Ser | Gly | Thr | Glu | Pro | Ile | Val | Tyr | Tyr |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Trp | Gln | Arg | Ile | Arg | Glu | Lys | Glu | Gly | Glu | Asp | Glu | Arg | Leu | Pro |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Pro | Lys | Ser | Arg | Ile | Asp | Tyr | Asn | His | Pro | Gly | Arg | Val | Leu | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Gln | Asn | Leu | Thr | Met | Ser | Tyr | Ser | Gly | Leu | Tyr | Gln | Cys | Thr | Ala |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Gly | Asn | Glu | Ala | Gly | Lys | Glu | Ser | Cys | Val | Val | Arg | Val | Thr | Val |
| | | | | 215 | | | | | 220 | | | | | 225 |

| | | | | | |
|-----------------|---------------------|-------------------------|-----|-----|-----|
| Gln Tyr Val Gln | Ser Ile Gly Met Val | Ala Gly Ala Val Thr Gly | 230 | 235 | 240 |
| Ile Val Ala Gly | Ala Leu Leu Ile Phe | Leu Leu Val Trp Leu Leu | 245 | 250 | 255 |
| Ile Arg Arg Lys | Asp Lys Glu Arg Tyr | Glu Glu Glu Glu Arg Pro | 260 | 265 | 270 |
| Asn Glu Ile Arg | Glu Asp Ala Glu Ala | Pro Lys Ala Arg Leu Val | 275 | 280 | 285 |
| Lys Pro Ser Ser | Ser Ser Ser Gly Ser | Arg Ser Ser Arg Ser Gly | 290 | 295 | 300 |
| Ser Ser Ser Thr | Arg Ser Thr Ala Asn | Ser Ala Ser Arg Ser Gln | 305 | 310 | 315 |
| Arg Thr Leu Ser | Thr Asp Ala Ala Pro | Gln Pro Gly Leu Ala Thr | 320 | 325 | 330 |
| Gln Ala Tyr Ser | Leu Val Gly Pro Glu | Val Arg Gly Ser Glu Pro | 335 | 340 | 345 |
| Lys Lys Val His | His Ala Asn Leu Thr | Lys Ala Glu Thr Thr Pro | 350 | 355 | 360 |
| Ser Met Ile Pro | Ser Gln Ser Arg Ala | Phe Gln Thr Val | 365 | 370 | |

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 <211> 3060
 <212> DNA
 <213> Homo Sapien

<400> 504
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 ctctgtgctg gagtagtgga tttcgccaga agtttgagta tcactactcc 150
 tgaagagatg attgaaaaag ccaaagggga aactgcctat ctgccatgca 200
 aatttacgct tagtcccgaa gaccaggagc cgctggacat cgagtggctg 250
 atatcaccag ctgataatca gaaggtggat caagtgatta ttttatattc 300
 tggagacaaa atttatgatg actactatcc agatctgaaa ggccgagtac 350
 attttacgag taatgatctc aaatctggtg atgcatcaat aaatgtaacg 400
 aatttacaac tgtcagatat tggcacatat cagtgcaaag tgaaaaaagc 450
 tcctggtggt gcaaataaga agattcatct ggtagttctt gttaagcctt 500
 caggtgagat atgttacggt gatggatctg aagaaattgg aagtgacttt 550
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3050
aaaaaaaaaa 3060

<210> 505
<211> 352
<212> PRT
<213> Homo Sapien

<400> 505
Met Ala Leu Leu Cys Phe Val Leu Leu Cys Gly Val Val Asp
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Phe Ala Arg Ser Leu Ser Ile Thr Thr Pro Glu Glu Met Ile Glu
20 25 30
Lys Ala Lys Gly Glu Thr Ala Tyr Leu Pro Cys Lys Phe Thr Leu
35 40 45
Ser Pro Glu Asp Gln Gly Pro Leu Asp Ile Glu Trp Leu Ile Ser
50 55 60
Pro Ala Asp Asn Gln Lys Val Asp Gln Val Ile Ile Leu Tyr Ser
65 70 75
Gly Asp Lys Ile Tyr Asp Asp Tyr Tyr Pro Asp Leu Lys Gly Arg
80 85 90
Val His Phe Thr Ser Asn Asp Leu Lys Ser Gly Asp Ala Ser Ile
95 100 105
Asn Val Thr Asn Leu Gln Leu Ser Asp Ile Gly Thr Tyr Gln Cys
110 115 120
Lys Val Lys Lys Ala Pro Gly Val Ala Asn Lys Lys Ile His Leu

| | 125 | 130 | 135 |
|-----------------|---------------------|---------------------|---------|
| Val Val Leu Val | Lys Pro Ser Gly Ala | Arg Cys Tyr Val | Asp Gly |
| | 140 | 145 | 150 |
| Ser Glu Glu Ile | Gly Ser Asp Phe Lys | Ile Lys Cys Glu Pro | Lys |
| | 155 | 160 | 165 |
| Glu Gly Ser Leu | Pro Leu Gln Tyr Glu | Trp Gln Lys Leu Ser | Asp |
| | 170 | 175 | 180 |
| Ser Gln Lys Met | Pro Thr Ser Trp Leu | Ala Glu Met Thr Ser | Ser |
| | 185 | 190 | 195 |
| Val Ile Ser Val | Lys Asn Ala Ser Ser | Glu Tyr Ser Gly Thr | Tyr |
| | 200 | 205 | 210 |
| Ser Cys Thr Val | Arg Asn Arg Val Gly | Ser Asp Gln Cys Leu | Leu |
| | 215 | 220 | 225 |
| Arg Leu Asn Val | Val Pro Pro Ser Asn | Lys Ala Gly Leu Ile | Ala |
| | 230 | 235 | 240 |
| Gly Ala Ile Ile | Gly Thr Leu Leu Ala | Leu Ala Leu Ile Gly | Leu |
| | 245 | 250 | 255 |
| Ile Ile Phe Cys | Cys Arg Lys Lys Arg | Arg Glu Glu Lys Tyr | Glu |
| | 260 | 265 | 270 |
| Lys Glu Val His | His Asp Ile Arg Glu | Asp Val Pro Pro Pro | Lys |
| | 275 | 280 | 285 |
| Ser Arg Thr Ser | Thr Ala Arg Ser Tyr | Ile Gly Ser Asn His | Ser |
| | 290 | 295 | 300 |
| Ser Leu Gly Ser | Met Ser Pro Ser Asn | Met Glu Gly Tyr Ser | Lys |
| | 305 | 310 | 315 |
| Thr Gln Tyr Asn | Gln Val Pro Ser Glu | Asp Phe Glu Arg Thr | Pro |
| | 320 | 325 | 330 |
| Gln Ser Pro Thr | Leu Pro Pro Ala Lys | Phe Lys Tyr Pro Tyr | Lys |
| | 335 | 340 | 345 |
| Thr Asp Gly Ile | Thr Val Val | | |
| | 350 | | |

<210> 506
 <211> 1705
 <212> DNA
 <213> Homo Sapien

<400> 506
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 ccagctgcct ccaggcagcc agccctcaag catcacttac aggaccagag 150
 ggacaagaca tgactgtgat gaggagctgc tttcgccaat ttaacaccaa 200
 gaagaattga ggctgcttgg gaggaaggcc aggaggaaca cgagactgag 250

agatgaattt tcaacagagg ctgcaaagcc tgtggacttt agccagaccc 300
 ttctgccctc ctttgctggc gacagcctct caaatgcaga tggttgtgct 350
 cccttgccctg ggttttaccc tgcttctctg gagccaggta tcagggggccc 400
 agggccaaga attccacttt gggccctgcc aagtgaaggg ggttgttccc 450
 cagaaactgt ggaagcctt ctgggctgtg aaagacacta tgcaagctca 500
 ggataacatc acgagtgtcc ggctgtgtca gcaggagggt ctgcagaacg 550
 tctcggtatg tgagagctgt taccttgtcc acacctgtgt ggagttctac 600
 ttgaaaactg ttttcaaaaa ccaccacaat agaacagttg aagtcaggac 650
 tctgaagtca ttctctactc tggccaacaa ctttgttctc atcgtgtcac 700
 aactgcaacc cagtcaagaa aatgagatgt tttccatcag agacagtgtca 750
 cacaggcggg ttctgtctatt ccggagagca ttcaaacagt tggacgtaga 800
 agcagctctg accaaagccc ttggggaagt ggacattctt ctgacctgga 850
 tgcagaaatt ctacaagctc tgaatgtcta gaccaggacc tccctcccc 900
 tggcactggg ttgttccctg tgtcatttca aacagtctcc cttoctatgc 950
 tgttactggg acacttcacg cccttggcca tgggtcccat tcttggccca 1000
 ggattattgt caaagaagtc attctttaag cagcgccagt gacagtcagg 1050
 gaaggtgcct ctggatgtgt tgaagagtct acagagaaga ttcttgtatt 1100
 tattacaact ctatttaatt aatgtcagta tttcaactga agttctatatt 1150
 atttgtgaga ctgtaagtta catgaaggca gcagaatatt gtgccccatg 1200
 cttctttacc cctcacaatc cttgccacag tgtggggcag tggatgggtg 1250
 cttagtaagt acttaataaa ctgtgggtgt ttttttggcc tgtcttttga 1300
 ttgttaaaaa acagagaggg atgcttggat gtaaaactga acttcagagc 1350
 atgaaaatca cactgtcttc tgatatctgc agggacagag cattgggggtg 1400
 ggggtaagggt gcatctgttt gaaaagtaaa cgataaaatg tggattaaag 1450
 tgcccagcac aaagcagatc ctcaataaac atttcatttc ccaccacac 1500
 tggccagctc accccatcat ccctttccct tggtgccctc cttttttttt 1550
 tatctagtc attcttccct aatcttccac ttgagtgtca agctgacctt 1600
 gctgatgggt acattgcacc tggatgtact atccaatctg tgatgacatt 1650
 ccctgctaataaaaagacaac ataactccaa aaaaaaaaaa aaaaaaaaaa 1700
 aaaaa 1705

<210> 507
 <211> 206
 <212> PRT

<213> Homo Sapien

<400> 507

Met Asn Phe Gln Gln Arg Leu Gln Ser Leu Trp Thr Leu Ala Arg
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Pro Phe Cys Pro Pro Leu Leu Ala Thr Ala Ser Gln Met Gln Met
20 25 30
Val Val Leu Pro Cys Leu Gly Phe Thr Leu Leu Leu Trp Ser Gln
35 40 45
Val Ser Gly Ala Gln Gly Gln Glu Phe His Phe Gly Pro Cys Gln
50 55 60
Val Lys Gly Val Val Pro Gln Lys Leu Trp Glu Ala Phe Trp Ala
65 70 75
Val Lys Asp Thr Met Gln Ala Gln Asp Asn Ile Thr Ser Ala Arg
80 85 90
Leu Leu Gln Gln Glu Val Leu Gln Asn Val Ser Asp Ala Glu Ser
95 100 105
Cys Tyr Leu Val His Thr Leu Leu Glu Phe Tyr Leu Lys Thr Val
110 115 120
Phe Lys Asn His His Asn Arg Thr Val Glu Val Arg Thr Leu Lys
125 130 135
Ser Phe Ser Thr Leu Ala Asn Asn Phe Val Leu Ile Val Ser Gln
140 145 150
Leu Gln Pro Ser Gln Glu Asn Glu Met Phe Ser Ile Arg Asp Ser
155 160 165
Ala His Arg Arg Phe Leu Leu Phe Arg Arg Ala Phe Lys Gln Leu
170 175 180
Asp Val Glu Ala Ala Leu Thr Lys Ala Leu Gly Glu Val Asp Ile
185 190 195
Leu Leu Thr Trp Met Gln Lys Phe Tyr Lys Leu
200 205

<210> 508

<211> 924

<212> DNA

<213> Homo Sapien

<400> 508

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cggtctcagg agatgtctga tttccacaga catgcacat atagaagaga 150
gtttccaaga aatcaaaaga gccatccaag ctaaggacac cttcccaa 200
gtcactatcc tgtccacatt ggagactctg cagatcatta agcccttaga 250
tgtgtgctgc gtgaccaaga acctcctggc gttctacgtg gacagggtgt 300

tcaaggatca tcaggagcca aacccccaaaa tcttgagaaa aatcagcagc 350
 attgccaaact ctttcctcta catgcagaaa actctgcggc aatgtcagga 400
 acagaggcag tgtcactgca ggcaggaagc caccaatgcc accagagtca 450
 tccatgacaa ctatgatcag ctggaggtcc acgctgctgc cattaaatcc 500
 ctgggagagc tcgacgtctt tctagcctgg attaataaga atcatgaagt 550
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 taaactctat ctgctgaaag ggcctgcagg ccacccctgg agtaaagggc 800
 tgccttccca tctaatttat tgtaaagtca tatagtccat gtctgtgatg 850
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 ataaattcca tattttacct atga 924

<210> 509
 <211> 177
 <212> PRT
 <213> Homo Sapien

<400> 509
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 Ile Leu Cys Ser Val Asp Asn His Gly Leu Arg Arg Cys Leu Ile 30
 20 25 30
 Ser Thr Asp Met His His Ile Glu Glu Ser Phe Gln Glu Ile Lys 45
 35 40 45
 Arg Ala Ile Gln Ala Lys Asp Thr Phe Pro Asn Val Thr Ile Leu 60
 50 55 60
 Ser Thr Leu Glu Thr Leu Gln Ile Ile Lys Pro Leu Asp Val Cys 75
 65 70 75
 Cys Val Thr Lys Asn Leu Leu Ala Phe Tyr Val Asp Arg Val Phe 90
 80 85 90
 Lys Asp His Gln Glu Pro Asn Pro Lys Ile Leu Arg Lys Ile Ser 105
 95 100 105
 Ser Ile Ala Asn Ser Phe Leu Tyr Met Gln Lys Thr Leu Arg Gln 120
 110 115 120
 Cys Gln Glu Gln Arg Gln Cys His Cys Arg Gln Glu Ala Thr Asn 135
 125 130 135
 Ala Thr Arg Val Ile His Asp Asn Tyr Asp Gln Leu Glu Val His 150
 140 145 150
 Ala Ala Ala Ile Lys Ser Leu Gly Glu Leu Asp Val Phe Leu Ala

155

160

165

Trp Ile Asn Lys Asn His Glu Val Met Phe Ser Ala
170 175

<210> 510

<211> 996

<212> DNA

<213> Homo Sapien

<400> 510

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tccacaggtg tccactccca ggtccaactg cacctcgggtt ctatcgataa 200
tctcagcacc agccactcag agcagggcac gatgttgggg gcccgccctca 250
ggctctgggt ctgtgccttg tgcagcgtct gcagcatgag cgtcctcaga 300
gcctatccca atgcctcccc actgctcggc tccagctggg gtggcctgat 350
ccacctgtac acagccacag ccaggaacag ctaccacotg cagatccaca 400
agaatggcca tgtggatggc gcaccccatc agaccatcta cagtgccttg 450
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atttcgaccc ggagaactgc aggttccaac accagacgct ggaaaacggg 600
tacgacgtct accactctcc tcagtatcac ttcttggtca gtctggggccg 650
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tcctgtcccc gaggaacgag atccccctaa ttacttcaa ccccccata 750
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gaacgtgctg aagccccggg cccggatgac cccggccccg gcctcctgtt 850
cacaggagct cccgagcgcc gaggacaaca gcccgatggc cagtgaacca 900
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cccgaaggc tgccgcccct tcgccaagtt catctagggt cgctgg 996

<210> 511

<211> 251

<212> PRT

<213> Homo Sapien

<400> 511

Met Leu Gly Ala Arg Leu Arg Leu Trp Val Cys Ala Leu Cys Ser
1 5 10 15
Val Cys Ser Met Ser Val Leu Arg Ala Tyr Pro Asn Ala Ser Pro
20 25 30

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Gly | Ser | Ser | Trp | Gly | Gly | Leu | Ile | His | Leu | Tyr | Thr | Ala | |
| | | | | 35 | | | | | 40 | | | | | | 45 |
| Thr | Ala | Arg | Asn | Ser | Tyr | His | Leu | Gln | Ile | His | Lys | Asn | Gly | His | |
| | | | | 50 | | | | | 55 | | | | | | 60 |
| Val | Asp | Gly | Ala | Pro | His | Gln | Thr | Ile | Tyr | Ser | Ala | Leu | Met | Ile | |
| | | | | 65 | | | | | 70 | | | | | | 75 |
| Arg | Ser | Glu | Asp | Ala | Gly | Phe | Val | Val | Ile | Thr | Gly | Val | Met | Ser | |
| | | | | 80 | | | | | 85 | | | | | | 90 |
| Arg | Arg | Tyr | Leu | Cys | Met | Asp | Phe | Arg | Gly | Asn | Ile | Phe | Gly | Ser | |
| | | | | 95 | | | | | 100 | | | | | | 105 |
| His | Tyr | Phe | Asp | Pro | Glu | Asn | Cys | Arg | Phe | Gln | His | Gln | Thr | Leu | |
| | | | | 110 | | | | | 115 | | | | | | 120 |
| Glu | Asn | Gly | Tyr | Asp | Val | Tyr | His | Ser | Pro | Gln | Tyr | His | Phe | Leu | |
| | | | | 125 | | | | | 130 | | | | | | 135 |
| Val | Ser | Leu | Gly | Arg | Ala | Lys | Arg | Ala | Phe | Leu | Pro | Gly | Met | Asn | |
| | | | | 140 | | | | | 145 | | | | | | 150 |
| Pro | Pro | Pro | Tyr | Ser | Gln | Phe | Leu | Ser | Arg | Arg | Asn | Glu | Ile | Pro | |
| | | | | 155 | | | | | 160 | | | | | | 165 |
| Leu | Ile | His | Phe | Asn | Thr | Pro | Ile | Pro | Arg | Arg | His | Thr | Arg | Ser | |
| | | | | 170 | | | | | 175 | | | | | | 180 |
| Ala | Glu | Asp | Asp | Ser | Glu | Arg | Asp | Pro | Leu | Asn | Val | Leu | Lys | Pro | |
| | | | | 185 | | | | | 190 | | | | | | 195 |
| Arg | Ala | Arg | Met | Thr | Pro | Ala | Pro | Ala | Ser | Cys | Ser | Gln | Glu | Leu | |
| | | | | 200 | | | | | 205 | | | | | | 210 |
| Pro | Ser | Ala | Glu | Asp | Asn | Ser | Pro | Met | Ala | Ser | Asp | Pro | Leu | Gly | |
| | | | | 215 | | | | | 220 | | | | | | 225 |
| Val | Val | Arg | Gly | Gly | Arg | Val | Asn | Thr | His | Ala | Gly | Gly | Thr | Gly | |
| | | | | 230 | | | | | 235 | | | | | | 240 |
| Pro | Glu | Gly | Cys | Arg | Pro | Phe | Ala | Lys | Phe | Ile | | | | | |
| | | | | 245 | | | | | 250 | | | | | | |

<210> 512
 <211> 2015
 <212> DNA
 <213> Homo Sapien

<400> 512
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 ctgctgggag gttggggtct ctgggagctc tgcaggcccc agcaccgcga 150
 gagcagacac tgcgatgaca acggacgaca cagaagtgcc cgctatgact 200
 ctagcaccgg gccacgccgc tctggaaact caaacgtga gcgctgagac 250
 ctcttctagg gcctcaaccc cagccggccc cattccagaa gcagagacca 300

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 acatctccca acttcatggt gctgatcgcc acctccgtgg agacatcagc 400
 cgccagtggc agccccgagg gagctggaat gaccacagtt cagaccatca 450
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 gggcagcatg tccaagcccc taaccccaga tgtggcaaca ggaccctgc 1850
 tcacatccac cggagtgtat gtatggggag gggcttcacc tgttccaga 1900

ggtgtccttg gactcacctt ggcacatggt ctgtgtttca gtaaagagag 1950
 acctgatcac ccatctgtgt gcttccatcc tgcattaaaa ttcactcagt 2000
 gtggcccaaa aaaaa 2015

<210> 513
 <211> 482
 <212> PRT
 <213> Homo Sapien

<400> 513

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Gly | Cys | Leu | Trp | Gly | Leu | Ala | Leu | Pro | Leu | Phe | Phe | Phe | Cys | 1 | 5 | 10 | 15 |
| Trp | Glu | Val | Gly | Val | Ser | Gly | Ser | Ser | Ala | Gly | Pro | Ser | Thr | Arg | 20 | 25 | 30 | |
| Arg | Ala | Asp | Thr | Ala | Met | Thr | Thr | Asp | Asp | Thr | Glu | Val | Pro | Ala | 35 | 40 | 45 | |
| Met | Thr | Leu | Ala | Pro | Gly | His | Ala | Ala | Leu | Glu | Thr | Gln | Thr | Leu | 50 | 55 | 60 | |
| Ser | Ala | Glu | Thr | Ser | Ser | Arg | Ala | Ser | Thr | Pro | Ala | Gly | Pro | Ile | 65 | 70 | 75 | |
| Pro | Glu | Ala | Glu | Thr | Arg | Gly | Ala | Lys | Arg | Ile | Ser | Pro | Ala | Arg | 80 | 85 | 90 | |
| Glu | Thr | Arg | Ser | Phe | Thr | Lys | Thr | Ser | Pro | Asn | Phe | Met | Val | Leu | 95 | 100 | 105 | |
| Ile | Ala | Thr | Ser | Val | Glu | Thr | Ser | Ala | Ala | Ser | Gly | Ser | Pro | Glu | 110 | 115 | 120 | |
| Gly | Ala | Gly | Met | Thr | Thr | Val | Gln | Thr | Ile | Thr | Gly | Ser | Asp | Pro | 125 | 130 | 135 | |
| Glu | Glu | Ala | Ile | Phe | Asp | Thr | Leu | Cys | Thr | Asp | Asp | Ser | Ser | Glu | 140 | 145 | 150 | |
| Glu | Ala | Lys | Thr | Leu | Thr | Met | Asp | Ile | Leu | Thr | Leu | Ala | His | Thr | 155 | 160 | 165 | |
| Ser | Thr | Glu | Ala | Lys | Gly | Leu | Ser | Ser | Glu | Ser | Ser | Ala | Ser | Ser | 170 | 175 | 180 | |
| Asp | Gly | Pro | His | Pro | Val | Ile | Thr | Pro | Ser | Arg | Ala | Ser | Glu | Ser | 185 | 190 | 195 | |
| Ser | Ala | Ser | Ser | Asp | Gly | Pro | His | Pro | Val | Ile | Thr | Pro | Ser | Arg | 200 | 205 | 210 | |
| Ala | Ser | Glu | Ser | Ser | Ala | Ser | Ser | Asp | Gly | Pro | His | Pro | Val | Ile | 215 | 220 | 225 | |
| Thr | Pro | Ser | Trp | Ser | Pro | Gly | Ser | Asp | Val | Thr | Leu | Leu | Ala | Glu | 230 | 235 | 240 | |
| Ala | Leu | Val | Thr | Val | Thr | Asn | Ile | Glu | Val | Ile | Asn | Cys | Ser | Ile | 245 | 250 | 255 | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Glu | Ile | Glu | Thr | Thr | Thr | Ser | Ser | Ile | Pro | Gly | Ala | Ser | Asp | 260 | 265 | 270 |
| Ile | Asp | Leu | Ile | Pro | Thr | Glu | Gly | Val | Lys | Ala | Ser | Ser | Thr | Ser | 275 | 280 | 285 |
| Asp | Pro | Pro | Ala | Leu | Pro | Asp | Ser | Thr | Glu | Ala | Lys | Pro | His | Ile | 290 | 295 | 300 |
| Thr | Glu | Val | Thr | Ala | Ser | Ala | Glu | Thr | Leu | Ser | Thr | Ala | Gly | Thr | 305 | 310 | 315 |
| Thr | Glu | Ser | Ala | Ala | Pro | His | Ala | Thr | Val | Gly | Thr | Pro | Leu | Pro | 320 | 325 | 330 |
| Thr | Asn | Ser | Ala | Thr | Glu | Arg | Glu | Val | Thr | Ala | Pro | Gly | Ala | Thr | 335 | 340 | 345 |
| Thr | Leu | Ser | Gly | Ala | Leu | Val | Thr | Val | Ser | Arg | Asn | Pro | Leu | Glu | 350 | 355 | 360 |
| Glu | Thr | Ser | Ala | Leu | Ser | Val | Glu | Thr | Pro | Ser | Tyr | Val | Lys | Val | 365 | 370 | 375 |
| Ser | Gly | Ala | Ala | Pro | Val | Ser | Ile | Glu | Ala | Gly | Ser | Ala | Val | Gly | 380 | 385 | 390 |
| Lys | Thr | Thr | Ser | Phe | Ala | Gly | Ser | Ser | Ala | Ser | Ser | Tyr | Ser | Pro | 395 | 400 | 405 |
| Ser | Glu | Ala | Ala | Leu | Lys | Asn | Phe | Thr | Pro | Ser | Glu | Thr | Pro | Thr | 410 | 415 | 420 |
| Met | Asp | Ile | Ala | Thr | Lys | Gly | Pro | Phe | Pro | Thr | Ser | Arg | Asp | Pro | 425 | 430 | 435 |
| Leu | Pro | Ser | Val | Pro | Pro | Thr | Thr | Thr | Asn | Ser | Ser | Arg | Gly | Thr | 440 | 445 | 450 |
| Asn | Ser | Thr | Leu | Ala | Lys | Ile | Thr | Thr | Ser | Ala | Lys | Thr | Thr | Met | 455 | 460 | 465 |
| Lys | Pro | Gln | Gln | Pro | Arg | Pro | Arg | Leu | Pro | Gly | Arg | Gly | Arg | Pro | 470 | 475 | 480 |

Gln Thr

<210> 514
 <211> 2284
 <212> DNA
 <213> Homo Sapien

<400> 514
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 tccttcccg cggcgcgaca gagctgtcct cgcacctgga tggcagcagg 100
 ggcgcggggg tcctctcgac gccagagaga aatctcatca tctgtgcagc 150
 cttcttaaag caaactaaga ccagaggag gattatcctt gacctttgaa 200
 gacaaaaact aaactgaaat ttaaaatgtt cttcggggga gaaggagct 250

tgacttacac tttggtaata atttgcttcc tgacactaag gctgtctgct 300
 agtcagaatt gcctcaaaaa gagtctagaa gatgttgtca ttgacatcca 350
 gtcattctctt tctaagggaa tcagaggcaa tgagcccgtata tatacttcaa 400
 ctcaagaaga ctgcattaat tcttgctggt caacaaaaaa catatcaggg 450
 gacaaagcat gtaacttgat gatcttcgac actcgaaaaa cagctagaca 500
 acccaactgc tacctatttt tctgtcccaa cgaggaagcc tgtccattga 550
 aaccagcaaa aggacttatg agttacagga taattacaga ttttccatct 600
 ttgaccagaa atttgccaag ccaagagtta cccaggaag attctctctt 650
 acatggccaa ttttcacaag cagtactcc cctagcccat catcacacag 700
 attattcaaa gccaccgat atctcatgga gagacacact ttctcagaag 750
 tttggatcct cagatcacct ggagaaacta ttttaagatgg atgaagcaag 800
 tgcccagctc cttgcttata aggaaaaagg ccattctcag agttcacaat 850
 tttcctctga tcaagaaata gtcattctgc tgcccgaaaa tgtgagtgcg 900
 ctcccagcta cgggtggcagt tgcttctcca cataccacct cggctactcc 950
 aaagcccgcc acccttctac ccaccaatgc ttcagtgaca ccttctggga 1000
 cttcccagcc acagctggcc accacagctc cacctgtaac cactgtcact 1050
 tctcagcctc ccacgacct catttctaca gtttttacac gggctgcggc 1100
 tacactcaa gcaatggcta caacagcagt totgactacc acctttcagg 1150
 cacctacgga ctcgaaaggc agcttagaaa ccataccgtt tacagaaatc 1200
 tccaacttaa ctttgaacac agggaatgtg tataacccta ctgcactttc 1250
 tatgtcaaat gtggagtctt ccactatgaa taaaactgct tcctgggaag 1300
 gtagggaggc cagtccaggc agttcctccc agggcagtggt tccagaaaat 1350
 cagtacggcc ttccatttga aaaatggctt cttatcgggt ccctgctctt 1400
 tgggtgtcctg ttcttggtga taggcctcgt cctcctgggt agaatacctt 1450
 cggaatcact ccgcaggaaa cgttactcaa gactggatta tttgatcaat 1500
 gggatctatg tggacatcta aggatggaac tcggtgtctc ttaattcatt 1550
 tagtaaccag aagcccaaatt gcaatgagtt totgctgact tgotagtctt 1600
 agcaggaggt tgtattttga agacaggaaa atgccccctt ctgctttcct 1650
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 acacctgggt gatttttgta tttttagtag agacgggggt tcaccatggt 1850

gggtcaggctg gtctcaaact cctgacctag tgatccaccc tctcggcct 1900
 cccaaagtgc tgggattaca ggcatgagcc accacagctg gcccccttct 1950
 gttttatggtt tggtttttga gaaggaatga agtggggaacc aaattaggta 2000
 attttgggta atctgtctct aaaatattag ctaaaaacaa agctctatgt 2050
 aaagtaataa agtataattg ccatataaat ttcaaaattc aactggcttt 2100
 tatgcaaaga aacagggttag gacatctagg ttccaattca ttcacattct 2150
 tggttccaga taaaatcaac tgtttatatc aattttctaataa ggatttgctt 2200
 ttctttttat atggattcct ttaaaactta ttccagatgt agttccttcc 2250
 aattaaatat ttgaataaat cttttgttac tcaa 2284

<210> 515
 <211> 431
 <212> PRT
 <213> Homo Sapien

<400> 515
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 Ile Cys Phe Leu Thr Leu Arg Leu Ser Ala Ser Gln Asn Cys Leu
 20 25 30
 Lys Lys Ser Leu Glu Asp Val Val Ile Asp Ile Gln Ser Ser Leu
 35 40 45
 Ser Lys Gly Ile Arg Gly Asn Glu Pro Val Tyr Thr Ser Thr Gln
 50 55 60
 Glu Asp Cys Ile Asn Ser Cys Cys Ser Thr Lys Asn Ile Ser Gly
 65 70 75
 Asp Lys Ala Cys Asn Leu Met Ile Phe Asp Thr Arg Lys Thr Ala
 80 85 90
 Arg Gln Pro Asn Cys Tyr Leu Phe Phe Cys Pro Asn Glu Glu Ala
 95 100 105
 Cys Pro Leu Lys Pro Ala Lys Gly Leu Met Ser Tyr Arg Ile Ile
 110 115 120
 Thr Asp Phe Pro Ser Leu Thr Arg Asn Leu Pro Ser Gln Glu Leu
 125 130 135
 Pro Gln Glu Asp Ser Leu Leu His Gly Gln Phe Ser Gln Ala Val
 140 145 150
 Thr Pro Leu Ala His His His Thr Asp Tyr Ser Lys Pro Thr Asp
 155 160 165
 Ile Ser Trp Arg Asp Thr Leu Ser Gln Lys Phe Gly Ser Ser Asp
 170 175 180
 His Leu Glu Lys Leu Phe Lys Met Asp Glu Ala Ser Ala Gln Leu
 185 190 195

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Ala | Tyr | Lys | Glu | Lys | Gly | His | Ser | Gln | Ser | Ser | Gln | Phe | Ser | |
| | | | | 200 | | | | | 205 | | | | | 210 | |
| Ser | Asp | Gln | Glu | Ile | Ala | His | Leu | Leu | Pro | Glu | Asn | Val | Ser | Ala | |
| | | | | 215 | | | | | 220 | | | | | 225 | |
| Leu | Pro | Ala | Thr | Val | Ala | Val | Ala | Ser | Pro | His | Thr | Thr | Ser | Ala | |
| | | | | 230 | | | | | 235 | | | | | 240 | |
| Thr | Pro | Lys | Pro | Ala | Thr | Leu | Leu | Pro | Thr | Asn | Ala | Ser | Val | Thr | |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Pro | Ser | Gly | Thr | Ser | Gln | Pro | Gln | Leu | Ala | Thr | Thr | Ala | Pro | Pro | |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Val | Thr | Thr | Val | Thr | Ser | Gln | Pro | Pro | Thr | Thr | Leu | Ile | Ser | Thr | |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Val | Phe | Thr | Arg | Ala | Ala | Ala | Thr | Leu | Gln | Ala | Met | Ala | Thr | Thr | |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Ala | Val | Leu | Thr | Thr | Thr | Phe | Gln | Ala | Pro | Thr | Asp | Ser | Lys | Gly | |
| | | | | 305 | | | | | 310 | | | | | 315 | |
| Ser | Leu | Glu | Thr | Ile | Pro | Phe | Thr | Glu | Ile | Ser | Asn | Leu | Thr | Leu | |
| | | | | 320 | | | | | 325 | | | | | 330 | |
| Asn | Thr | Gly | Asn | Val | Tyr | Asn | Pro | Thr | Ala | Leu | Ser | Met | Ser | Asn | |
| | | | | 335 | | | | | 340 | | | | | 345 | |
| Val | Glu | Ser | Ser | Thr | Met | Asn | Lys | Thr | Ala | Ser | Trp | Glu | Gly | Arg | |
| | | | | 350 | | | | | 355 | | | | | 360 | |
| Glu | Ala | Ser | Pro | Gly | Ser | Ser | Ser | Gln | Gly | Ser | Val | Pro | Glu | Asn | |
| | | | | 365 | | | | | 370 | | | | | 375 | |
| Gln | Tyr | Gly | Leu | Pro | Phe | Glu | Lys | Trp | Leu | Leu | Ile | Gly | Ser | Leu | |
| | | | | 380 | | | | | 385 | | | | | 390 | |
| Leu | Phe | Gly | Val | Leu | Phe | Leu | Val | Ile | Gly | Leu | Val | Leu | Leu | Gly | |
| | | | | 395 | | | | | 400 | | | | | 405 | |
| Arg | Ile | Leu | Ser | Glu | Ser | Leu | Arg | Arg | Lys | Arg | Tyr | Ser | Arg | Leu | |
| | | | | 410 | | | | | 415 | | | | | 420 | |
| Asp | Tyr | Leu | Ile | Asn | Gly | Ile | Tyr | Val | Asp | Ile | | | | | |
| | | | | 425 | | | | | 430 | | | | | | |

<210> 516
 <211> 2749
 <212> DNA
 <213> Homo Sapien

<220>
 <221> unsure
 <222> 1869, 1887
 <223> unknown base

<400> 516
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 ttgctgctg ctcccaggtt atgaagccct ggagggccca gaggaaatca 100

gcggttctga aggggacact gtgtccctgc agtgcaccta caggggaagag 150
ctgagggacc accggaagta ctggtgcagg aaggggtggga tcctcttctc 200
tcgctgctct ggcaccatct atgcagaaga agaaggccag gagacaatga 250
agggcagggg gtccatccgt gacagccgcc aggagctctc gctcattgtg 300
accctgtgga acctcaccct gcaagacgct ggggagtact ggtgtggggg 350
cgaaaaacgg ggccccgatg agtctttact gatctctctg ttctgttttc 400
caggaccctg ctgtcctccc tccccctctc ccaccttcca gcctctggct 450
acaacacgcc tgcagcccaa ggcaaaagct cagcaaacc agccccagg 500
attgacttct cctgggctct acccggcagc caccacagcc aagcagggga 550
agacaggggc tgaggcccct ccattgccag ggacttccca gtacgggcac 600
gaaaggactt ctgagtacac aggaacctct cctcaccag cgacctctcc 650
tcctgcaggg agtccccgcc ccccatgca gctggactcc acctcagcag 700
aggacaccag tccagctctc agcagtggca gctctaagcc caggggtgtcc 750
atcccgatgg tccgcatact ggccccagtc ctggtgctgc tgagccttct 800
gtcagccgca ggctgatcg ccttctgcag ccacctgctc ctgtggagaa 850
aggaagctca acaggccacg gagacacaga ggaacgagaa gttctggctc 900
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tctcgaagtt tgtctcagcg tagggcagga ggccctcctg gccaggccag 1050
cagtgaagca gtatggctgg ctggatcagc accgattccc gaaagctttc 1100
cacctcagcc tcagagtcca gctgccccga ctccagggct ctccccaccc 1150
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 cctttggaaa aaatgatgaa gaaaaccttg gctccttcct tgtctggaaa 1950
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 gtaaagtagc acaactacta ttttttttct ttttccatta ttattgtttt 2150
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 ctgcaaactc cgctcctgg gttcaagtga ttcttctgcc tcagcctccc 2250
 gagtagctgg gattacaggc acgcaccacc acacctggct aatttttgta 2300
 ctttttagtag agatgggggtt tcaccatggt ggccaggctg gtcttgaact 2350
 cctgacctca aatgagcctc ctgcttcagt ctcccaaatt gccgggatta 2400
 caggcatgag ccactgtgtc tggccctatt tcctttaaaa agtgaaatta 2450
 agagttgttc agtatgcaa acttggaag atggaggaga aaaagaaaag 2500
 gaagaaaaaa atgtcaccca tagtctcacc agagactatc attatttcgt 2550
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 tctttttaca gagcaattat cttgtatata caactttgta tcctgccttt 2650
 tccaccttat cgttccatca ctttattcca gcacttctct gtgttttaca 2700
 gaccttttta taaataaaat gttcatcagc tgcataaaaa aaaaaaaaaa 2749

<210> 517
 <211> 332
 <212> PRT
 <213> Homo Sapien

<400> 517
 Met Arg Leu Leu Val Leu Leu Trp Gly Cys Leu Leu Leu Pro Gly
 1 5 10 15
 Tyr Glu Ala Leu Glu Gly Pro Glu Glu Ile Ser Gly Phe Glu Gly
 20 25 30
 Asp Thr Val Ser Leu Gln Cys Thr Tyr Arg Glu Glu Leu Arg Asp
 35 40 45
 His Arg Lys Tyr Trp Cys Arg Lys Gly Gly Ile Leu Phe Ser Arg
 50 55 60
 Cys Ser Gly Thr Ile Tyr Ala Glu Glu Gly Gly Gln Glu Thr Met
 65 70 75

ccctgcagtg cacctacagg gaag 24

<210> 519

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 519

ctgtcttccc ctgcttggt gtgg 24

<210> 520

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 520

ggtgcaggaa ggtggtgatc ctcttctctc gctgctctgg ccacatc 47

<210> 521

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 521

ccagtgcaca gcaggcaacg aagc 24

<210> 522

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 522

actaggctgt atgcctgggt gggc 24

<210> 523

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 523

gtatgtacaa agcatcggca tggttgcagg agcagtgaca ggc 43

<210> 524

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 524

aatctcagca ccagccactc agagca 26

<210> 525

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 525

gttaaagagg gtgcccttcc agcga 25

<210> 526

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 526

tatcccaatg cctccccact gctc 24

<210> 527

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 527

gatgaacttg gcgaaggggc ggca 24

<210> 528

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 528

agggaggatt atccttgacc tttgaagacc 30

<210> 529

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 529

gaagcaagtg cccagctc 18

<210> 530

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 530

cggttcctg ctctttgg 18

<210> 531

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 531

caccgtagct gggagcgac tcac 24

<210> 532

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 532

agtgttaagtc aagctccc 18